

Chapter 3. Airport Traffic Control- Terminal

Section 1. General

3-1-1. PROVIDE SERVICE

Provide airport traffic control service based only upon observed or known traffic and airport conditions.

NOTE-

When operating in accordance with CFR's, it is the responsibility of the pilot to avoid collision with other aircraft. However, due to the limited space around terminal locations, traffic information can aid pilots in avoiding collision between aircraft operating within Class B, Class C, or Class D surface areas and the terminal radar service areas, and transiting aircraft operating in proximity to terminal locations.

3-1-2. PREVENTIVE CONTROL

Provide preventive control service only to aircraft operating in accordance with a letter of agreement. When providing this service, issue advice or instructions only if a situation develops which requires corrective action.

NOTE-

Preventive control differs from other airport traffic control in that repetitious, routine approval of pilot action is eliminated. Controllers intervene only when they observe a traffic conflict developing.

3-1-3. USE OF ACTIVE RUNWAYS

The local controller has primary responsibility for operations conducted on the active runway and must control the use of those runways. Positive coordination and control is required as follows:

NOTE-

Exceptions may be authorized only as provided in para 1-1-9, Constraints Governing Supplements and Procedural Deviations, and FAAO 7210.3, Use of Active Runways, para 10-1-7, where justified by extraordinary circumstances at specific locations.

REFERENCE-

FAAO 7110.65, Constraints Governing Supplements and Procedural Deviations, Para 1-1-9.

FAAO 7210.3, Use of Active Runways, Para 10-1-7.

a. Ground control must obtain approval from local control before authorizing an aircraft or a vehicle to cross or use any portion of an active runway. The coordination shall include the point/intersection at the runway where the operation will occur.

PHRASEOLOGY-

CROSS (runway) AT (point/intersection).

b. When the local controller authorizes another controller to cross an active runway, the local controller shall verbally specify the runway to be crossed and the point/intersection at the runway where the operation will occur preceded by the word "cross."

PHRASEOLOGY-

CROSS (runway) AT (point/intersection).

c. The ground controller shall advise the local controller when the coordinated runway operation is complete. This may be accomplished verbally or through visual aids as specified by a facility directive.

d. **USA/USAF NOT APPLICABLE.** Authorization for aircraft/vehicles to taxi/proceed on or along an active runway, for purposes other than crossing, shall be provided via direct communications on the appropriate local control frequency. This authorization may be provided on the ground control frequency after coordination with local control is completed for those operations specifically described in a facility directive.

NOTE-

The USA and USAF establish local operating procedures in accordance with USA and USAF directives.

e. The local controller shall coordinate with the ground controller before using a runway not previously designated as active.

REFERENCE-

FAAO 7110.65, Coordination Between Local and Ground Controllers, Para 3-1-4.

3-1-4. COORDINATION BETWEEN LOCAL AND GROUND CONTROLLERS

Local and ground controllers shall exchange information as necessary for the safe and efficient use of airport runways and movement areas. This may be accomplished via verbal means, flight progress strips, other written information, or automation displays. As a minimum, provide aircraft identification and applicable runway/intersection/taxiway information as follows:

a. Ground control shall notify local control when a departing aircraft has been taxied to a runway other than one previously designated as active.

REFERENCE-

FAAO 7110.65, Use of Active Runways, Para 3-1-3.

FAAO 7210.3, Selecting Active Runways, Para 10-1-6.

b. Ground control shall notify local control of any aircraft taxied to an intersection for takeoff, unless departure from that intersection is specifically designated via prior coordination or facility directive as the standard operating procedure for the runway to be used. When standard procedures require departures to use a specific intersection, ground control shall notify local control when aircraft are taxied to other portions of the runway for departure.

REFERENCE-

FAAO 7110.65, *Wake Turbulence Separation for Intersection Departures*, Para 3-9-7.

c. When the runways in use for landing/departing aircraft are not visible from the tower or the aircraft using them are not visible on radar, advise the local/ground controller of the aircraft's location before releasing the aircraft to the other controller.

3-1-5. VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS

a. Ensure that the runway to be used is free of all known ground vehicles, equipment, and personnel before a departing aircraft starts takeoff or a landing aircraft crosses the runway threshold.

b. Vehicles, equipment, and personnel in direct communications with the control tower may be authorized to operate up to the edge of an active runway surface when necessary. Provide advisories as specified in para 3-1-6, Traffic Information, and para 3-7-5, Precision Approach Critical Area, as appropriate.

PHRASEOLOGY-

PROCEED AS REQUESTED; AND IF NECESSARY, (additional instructions or information).

NOTE-

Establishing hold lines/signs is the responsibility of the airport manager. Standards for surface measurements, markings, and signs are contained in the following Advisory Circulars; AC 150/5300-13, AC 150/5340-1, AC 150/5340-18 and AC 150/5340-1G. The operator is responsible to properly position the aircraft, vehicle, or equipment at the appropriate hold line/sign or designated point. The requirements in para 3-1-12, Visually Scanning Runways, remain valid as appropriate.

REFERENCE-

FAAO 7110.65, *Runway Proximity*, Para 3-7-4.
FAAO 7110.65, *Touch-and-Go or Stop-and-Go or Low Approach*, Para 3-8-2.
FAAO 7110.65, *Altitude Restricted Low Approach*, Para 3-10-10.
AC 150/5300-13, *Airport Design*.
AC 150/5340-1G, *Standards for Airport Markings*.
14 CFR Section 91.129, *Operations in Class D Airspace*.
AIM, *Obstruction Lights*, Para 2-2-3.
P/ICG Term- *Runway in Use/Active Runway/Duty Runway*.

3-1-6. TRAFFIC INFORMATION

a. Describe vehicles, equipment, or personnel on or near the movement area in a manner which will assist pilots in recognizing them.

EXAMPLE-

"Mower left of runway two seven."

"Trucks crossing approach end of runway two five."

"Workman on taxiway Bravo."

"Aircraft left of runway one eight."

b. Describe the relative position of traffic in an easy to understand manner, such as "to your right" or "ahead of you."

EXAMPLE-

"Traffic, U.S. Air MD-Eighty on downwind leg to your left."

"King Air inbound from outer marker on straight-in approach to runway one seven."

c. When using a CTRD, you may issue traffic advisories using the standard radar phraseology prescribed in para 2-1-21, Traffic Advisories.

REFERENCE-

FAAO 7110.65, *Altitude Restricted Low Approach*, Para 3-10-10.

3-1-7. POSITION DETERMINATION

Determine the position of an aircraft before issuing taxi instructions or takeoff clearance.

NOTE-

The aircraft's position may be determined visually by the controller, by pilots, or through the use of the ASDE.

3-1-8. LOW LEVEL WIND SHEAR ADVISORIES

a. When low level wind shear is reported by pilots or detected on any of the Doppler or Low Level Wind Shear Alert Systems (LLWAS), controllers shall issue the alert to all arriving and departing aircraft until the alert is broadcast on the ATIS and pilots indicate they have received the appropriate ATIS code. A statement shall be included on the ATIS for 20 minutes following the last report or indication of wind shear.

REFERENCE-

FAAO 7110.65, *PIREP Information*, Para 2-6-3.
FAAO 7110.65, *Content*, Para 2-9-3.
FAAO 7110.65, *Landing Information*, Para 3-10-1.

PHRASEOLOGY-

LOW LEVEL WIND SHEAR ADVISORIES IN EFFECT.

b. At facilities without ATIS, ensure that wind shear information is broadcast to all arriving and departing aircraft for 20 minutes following the last report or indication of wind shear.

1. At locations equipped with LLWAS, the local controller shall provide wind information as follows:

NOTE-

The LLWAS is designed to detect low level wind shear conditions around the periphery of an airport. It does not detect wind shear beyond that limitation.

REFERENCE-

FAAO 7210.3, Low Level Wind Shear Alert System (LLWAS), Para 10-3-3.

(a) If an alert is received, issue the airport wind and the displayed field boundary wind.

PHRASEOLOGY-

WIND SHEAR ALERT. AIRPORT WIND (direction) AT (velocity). (Location of sensor) BOUNDARY WIND (direction) AT (velocity).

(b) If multiple alerts are received, issue an advisory that there are wind shear alerts in two/several/all quadrants. After issuing the advisory, issue the airport wind in accordance with para 3-9-1, Departure Information, followed by the field boundary wind most appropriate to the aircraft operation.

PHRASEOLOGY-

WIND SHEAR ALERTS TWO/SEVERAL/ALL QUADRANTS. AIRPORT WIND (direction) AT (velocity). (Location of sensor) BOUNDARY WIND (direction) AT (velocity).

(c) If requested by the pilot, issue specific field boundary wind information even though the LLWAS may not be in alert status.

NOTE-

The requirements for issuance of wind information remain valid as appropriate under this paragraph, para 3-9-1, Departure Information and para 3-10-1, Landing Information.

2. LLWAS "Network Expansion" (LLWAS NE) which is integrated with TDWR, and LLWAS "Relocation/Sustainment" (LLWAS-RS) provide the capability of displaying microburst alerts, wind shear alerts and wind information oriented to the threshold or departure end of a runway. TDWR and WSP are also designed to detect wind shear and microburst activity. ITWS will also provide tornado detection and alert. The associated ribbon display allows the controller to read the displayed alert without any need for interpretation.

(a) If a wind shear or microburst alert is received for the runway in use, issue the alert information for that runway to arriving and departing aircraft as it is displayed on the ribbon display.

PHRASEOLOGY-

(Runway) (arrival/departure) WIND SHEAR/MICROBURST ALERT, (windspeed) KNOT GAIN/LOSS, (location).

EXAMPLE-

17A MBA 40K - 3MF

PHRASEOLOGY-

RUNWAY 17 ARRIVAL MICROBURST ALERT 40 KNOT LOSS 3 MILE FINAL.

EXAMPLE-

17D WSA 25K+ 2MD

PHRASEOLOGY-

RUNWAY 17 DEPARTURE WIND SHEAR ALERT 25 KNOT GAIN 2 MILE DEPARTURE.

(b) If requested by the pilot or deemed appropriate by the controller, issue the displayed wind information oriented to the threshold or departure end of the runway.

PHRASEOLOGY-

(Runway) DEPARTURE/THRESHOLD WIND (direction) AT (velocity).

(c) Alerts occurring on the edge of the system, or if the system is unable to distinguish between wind shear and microbursts; an alert message will be displayed advising of a possible wind shear outside of the system network.

PHRASEOLOGY-

(Appropriate wind or alert information) POSSIBLE WIND SHEAR OUTSIDE THE NETWORK.

(d) If unstable conditions produce multiple alerts, issue an advisory of multiple wind shear/microburst alerts followed by specific alert or wind information.

PHRASEOLOGY-

MULTIPLE WIND SHEAR/MICROBURST ALERTS (specific alert or wind information).

(e) When a microburst/tornado is detected, a statement shall be included on the ATIS broadcast, "MICROBURST/TORNADO ADVISORIES IN EFFECT." This item shall be included on the ATIS for at least 20 MINUTES following the microburst alert. Issue the displayed tornado advisory oriented to the direction from the airport.

PHRASEOLOGY-

TORNADO ALERT (direction from airport).

(f) The LLWAS-NE and LLWAS-RS are designed to operate with as many as 50 percent of the total sensors inoperative. When all three remote sensors designated for a specific runway arrival or departure wind display line are inoperative then the LLWAS-NE

or LLWAS-RS for that runway arrival/departure shall be considered out of service. When a specific runway arrival or departure wind display line is inoperative and wind shear/microburst activity is likely; (e.g.; frontal activity, convective storms, PIREP's), a statement shall be included on the ATIS, "WIND SHEAR AND MICROBURST INFORMATION FOR RUNWAY (runway number) ARRIVAL/ DEPARTURE NOT AVAILABLE."

NOTE-

The geographic situation display (GSD) is a supervisory planning tool and is not intended to be a primary tool for microburst, wind shear or tornado alerts.

3-1-9. USE OF TOWER RADAR DISPLAYS

a. Uncertified tower display workstations shall be used only as an aid to assist controllers in visually locating aircraft or in determining their spatial relationship to known geographical points. Radar services and traffic advisories are not to be provided using uncertified tower display workstations. General information may be given in an easy to understand manner, such as "to your right" or "ahead of you."

EXAMPLE-

"Follow the aircraft ahead of you passing the river at the stacks." "King Air passing left to right."

REFERENCE-

FAAO 7210.3, Functional Use of Certified Tower Radar Displays, Para 10-5-3.

b. Local controllers may use certified tower radar displays for the following purposes:

1. To determine an aircraft's identification, exact location, or spatial relationship to other aircraft.

NOTE-

This authorization does not alter visual separation procedures. When employing visual separation, the provisions of para 7-2-1, Visual Separation, apply unless otherwise authorized by AAT-1.

REFERENCE-

FAAO 7110.65, Primary Radar Identification Methods, Para 5-3-2.
FAAO 7110.65, Beacon Identification Methods, Para 5-3-3.
FAAO 7110.65, Terminal Automation Systems Identification Methods, Para 5-3-4.

2. To provide aircraft with radar traffic advisories.

3. To provide a direction or suggested headings to VFR aircraft as a method for radar identification or as an advisory aid to navigation.

PHRASEOLOGY-

(Identification), PROCEED (direction)-BOUND, (other instructions or information as necessary),

or

(identification), SUGGESTED HEADING (degrees), (other instructions as necessary).

NOTE-

It is important that the pilot be aware of the fact that the directions or headings being provided are suggestions or are advisory in nature. This is to keep the pilot from being inadvertently misled into assuming that radar vectors (and other associated radar services) are being provided when, in fact, they are not.

4. To provide information and instructions to aircraft operating within the surface area for which the tower has responsibility.

EXAMPLE-

"TURN BASE LEG NOW."

NOTE-

Unless otherwise authorized, tower radar displays are intended to be an aid to local controllers in meeting their responsibilities to the aircraft operating on the runways or within the surface area. They are not intended to provide radar benefits to pilots except for those accrued through a more efficient and effective local control position. In addition, local controllers at nonapproach control towers must devote the majority of their time to visually scanning the runways and local area; an assurance of continued positive radar identification could place distracting and operationally inefficient requirements upon the local controller. Therefore, since the requirements of para 5-3-1, Application, cannot be assured, the radar functions prescribed above are not considered to be radar services and pilots should not be advised of being in "radar contact."

c. Additional functions may be performed provided the procedures have been reviewed and authorized by appropriate management levels.

REFERENCE-

FAAO 7110.65, Minima, Para 5-5-4.

3-1-10. OBSERVED ABNORMALITIES

When requested by a pilot or when you deem it necessary, inform an aircraft of any observed abnormal aircraft condition.

PHRASEOLOGY-

(Item) APPEAR/S (observed condition).

EXAMPLE-

"Landing gear appears up."

"Landing gear appears down and in place."

"Rear baggage door appears open."

3-1-11. SURFACE AREA RESTRICTIONS

a. If traffic conditions permit, approve a pilot's request to cross Class C or Class D surface areas or exceed the Class C or Class D airspace speed limit. Do not, however, approve a speed in excess of 250 knots (288 mph) unless the pilot informs you a higher minimum speed is required.

NOTE-

14 CFR Section 91.117 permits speeds in excess of 250 knots (288 mph) when so required or recommended in the airplane flight manual or required by normal military operating procedures.

REFERENCE-

FAAO 7110.65, Surface Areas, Para 2-1-16.

b. Do not approve a pilot's request or ask a pilot to conduct unusual maneuvers within surface areas of Class B, C, or D airspace if they are not essential to the performance of the flight.

EXCEPTION. A pilot's request to conduct aerobatic practice activities may be approved, when operating in accordance with a letter of agreement, and the activity will have no adverse affect on safety of the air traffic operation or result in a reduction of service to other users.

REFERENCE-

FAAO 7210.3, Aerobatic Practice Areas, Para 5-4-7.

NOTE-

These unusual maneuvers include unnecessary low passes, unscheduled flybys, practice instrument approaches to altitudes below specified minima (unless a landing or touch-and-go is to be made), or any so-called "buzz jobs" wherein a flight is conducted at a low altitude and/or a high rate of speed for thrill purposes. Such maneuvers increase hazards to persons and property and contribute to noise complaints.

3-1-12. VISUALLY SCANNING RUNWAYS

a. Local controllers shall visually scan runways to the maximum extent possible.

b. Ground control shall assist local control in visually scanning runways, especially when runways are in close proximity to other movement areas.

3-1-13. ESTABLISHING TWO-WAY COMMUNICATIONS

Pilots are required to establish two-way radio communications before entering the Class D airspace. If the controller responds to a radio call with, "(a/c call sign) standby," radio communications have been established and the pilot can enter the Class D airspace. If workload or traffic conditions prevent immediate provision of Class D services, inform the pilot to remain outside the Class D airspace until conditions permit the services to be provided.

PHRASEOLOGY-

(A/c call sign) REMAIN OUTSIDE DELTA AIRSPACE AND STANDBY.

REFERENCE-

FAAO 7110.65, Visual Separation, Para 7-2-1.

3-1-14. GROUND OPERATIONS WHEN VOLCANIC ASH IS PRESENT

When volcanic ash is present on the airport surface, and to the extent possible:

a. Avoid requiring aircraft to come to a full stop while taxiing.

b. Provide for a rolling takeoff for all departures.

NOTE-

When aircraft begin a taxi or takeoff roll on ash contaminated surfaces, large amounts of volcanic ash will again become airborne. This newly airborne ash will significantly reduce visibility and will be ingested by the engines of following aircraft.

REFERENCE-

AIM, Flight Operations in Volcanic Ash, Para 7-5-8.

Section 2. Visual Signals

3-2-1. LIGHT SIGNALS

Use ATC light signals from TBL 3-2-1 to control aircraft and the movement of vehicles, equipment, and personnel on the movement area when radio communications cannot be employed.

ATC Light Signals

Meaning			
Color and type of signal	Aircraft on the ground	Aircraft in flight	Movement of vehicles, equipment and personnel
Steady green	Cleared for takeoff	Cleared to land	Cleared to cross; proceed; go
Flashing green	Cleared to taxi	Return for landing (to be followed by steady green at the proper time)	Not applicable
Steady red	Stop	Give way to other aircraft and continue circling	Stop
Flashing red	Taxi clear of landing area or runway in use	Airport unsafe—Do not land	Clear the taxiway/runway
Flashing white	Return to starting point on airport	Not applicable	Return to starting point on airport
Alternating red and green	General Warning Signal—Exercise Extreme Caution	General Warning Signal—Exercise Extreme Caution	General Warning Signal—Exercise Extreme Caution

TBL 3-2-1

REFERENCE-

FAAO 7110.65, *Altitude Restricted Low Approach*, Para 3-10-10.
FAAO 7210.3, *Letters of Agreement*, Para 4-3-1.

3-2-2. WARNING SIGNAL

Direct a general warning signal, alternating red and green, to aircraft or vehicle operators, as appropriate, when:

NOTE-

The warning signal is not a prohibitive signal and can be followed by any other light signal, as circumstances permit.

- a. Aircraft are converging and a collision hazard exists.
- b. Mechanical trouble exists of which the pilot might not be aware.

c. Other hazardous conditions are present which call for intensified pilot or operator alertness. These conditions may include obstructions, soft field, ice on the runway, etc..

3-2-3. RECEIVER-ONLY ACKNOWLEDGMENT

To obtain acknowledgment from an aircraft equipped with receiver only, request the aircraft to do the following:

a. Fixed-wing aircraft:

1. Between sunrise and sunset:

(a) Move ailerons or rudders while on the ground.

(b) Rock wings while in flight.

2. Between sunset and sunrise: Flash navigation or landing lights.

b. Helicopters:

1. Between sunrise and sunset:

(a) While hovering, either turn the helicopter toward the controlling facility and flash the landing light or rock the tip path plane.

(b) While in flight, either flash the landing light or rock the tip path plane.

2. Between sunset and sunrise: Flash landing light or search light.

Section 3. Airport Conditions

3-3-1. LANDING AREA CONDITION

If you observe or are informed of any condition which affects the safe use of a landing area:

NOTE-

1. The airport management/military operations office is responsible for observing and reporting the condition of the landing area.

2. It is the responsibility of the agency operating the airport to provide the tower with current information regarding airport conditions.

3. A disabled aircraft on a runway, after occupants are clear, is normally handled by flight standards and airport management/military operations office personnel in the same manner as any obstruction; e.g., construction equipment.

a. Relay the information to the airport manager/military operations office concerned.

b. Copy verbatim any information received and record the name of the person submitting it.

c. Confirm information obtained from other than authorized airport or FAA personnel unless this function is the responsibility of the military operations office.

NOTE-

Civil airport managers are required to provide a list of airport employees who are authorized to issue information concerning conditions affecting the safe use of the airport.

d. If you are unable to contact the airport management or operator, issue a NOTAM publicizing an unsafe condition and inform the management or operator as soon as practicable.

EXAMPLE-

"DISABLED AIRCRAFT ON RUNWAY."

NOTE-

1. Legally, only the airport management/military operations office can close a runway.

2. Military controllers are not authorized to issue NOTAM's. It is the responsibility of the military operations office.

e. Issue to aircraft only factual information, as reported by the airport management concerning the condition of the runway surface, describing the accumulation of precipitation.

EXAMPLE-

"ALL RUNWAYS COVERED BY COMPACTED SNOW SIX INCHES DEEP."

REFERENCE-

FAAO 7110.65, Airport Conditions, Para 4-7-12.

3-3-2. CLOSED/UNSAFE RUNWAY INFORMATION

If an aircraft requests to takeoff, land, or touch-and-go on a closed or unsafe runway, inform the pilot the runway is closed or unsafe, and

a. If the pilot persists in his/her request, quote him/her the appropriate parts of the NOTAM applying to the runway and inform him/her that a clearance cannot be issued.

b. Then, if the pilot insists and in your opinion the intended operation would not adversely affect other traffic, inform him/her that the operation will be at his/her own risk.

PHRASEOLOGY-

RUNWAY (runway number) CLOSED/UNSAFE.

If appropriate, (quote NOTAM information),

UNABLE TO ISSUE DEPARTURE/LANDING/TOUCH-AND-GO CLEARANCE.

DEPARTURE/LANDING/TOUCH-AND-GO WILL BE AT YOUR OWN RISK.

c. Except as permitted by para 4-8-7, Side-step Maneuver, where parallel runways are served by separate ILS/MLS systems and one of the runways is closed, the ILS/MLS associated with the closed runway should not be used for approaches unless not using the ILS/MLS would have an adverse impact on the operational efficiency of the airport.

REFERENCE-

FAAO 7110.65, Landing Clearance, Para 3-10-5.

FAAO 7110.65, Airport Conditions, Para 4-7-12.

3-3-3. TIMELY INFORMATION

Issue airport condition information necessary for an aircraft's safe operation in time for it to be useful to the pilot. Include the following, as appropriate:

a. Construction work on or immediately adjacent to the movement area.

b. Rough portions of the movement area.

c. Braking conditions caused by ice, snow, slush, or water.

- d. Snowdrifts or piles of snow on or along the edges of the area and the extent of any plowed area.
- e. Parked aircraft on the movement area.
- f. Irregular operation of part or all of the airport lighting system.
- g. Volcanic ash on any airport surface area and whether the ash is wet or dry (if known).

NOTE-

Braking action on wet ash may be degraded. Dry ash on the runway may necessitate minimum use of reverse thrust.

- h. Other pertinent airport conditions.

REFERENCE-

FAAO 7110.65, *Airport Conditions*, Para 4-7-12.

FAAO 7110.65, *Reporting Essential Flight Information*, Para 2-1-9.

FAAO 7110.65, *Altitude Restricted Low Approach*, Para 3-10-10.

3-3-4. BRAKING ACTION

Furnish quality of braking action, as received from pilots or the airport management, to all aircraft as follows:

- a. Describe the quality of braking action using the terms "good," "fair," "poor," "nil," or a combination of these terms. If the pilot or airport management reports braking action in other than the foregoing terms, ask him/her to categorize braking action in these terms.

NOTE-

The term "nil" is used to indicate bad or no braking action.

- b. Include type of aircraft or vehicle from which the report is received.

EXAMPLE-

"Braking action fair to poor, reported by a heavy D-C Ten."

"Braking action poor, reported by a Boeing Seven Twenty-Seven."

- c. If the braking action report affects only a portion of a runway, obtain enough information from the pilot or airport management to describe the braking action in terms easily understood by the pilot.

EXAMPLE-

"Braking action poor first half of runway, reported by a Lockheed Ten Eleven."

"Braking action poor beyond the intersection of runway two seven, reported by a Boeing Seven Twenty-Seven."

NOTE-

Descriptive terms, such as the first or the last half of the runway, should normally be used rather than landmark descriptions, such as opposite the fire station, south of a taxiway, etc.. Landmarks extraneous to the landing runway are difficult to distinguish during low visibility, at night, or anytime a pilot is busy landing an aircraft.

- d. Furnish runway friction measurement readings/values as received from airport management to aircraft as follows:

1. Furnish information as received from the airport management to pilots on the ATIS at locations where friction measuring devices, such as MU-Meter, Saab Friction Tester (SFT), and Skiddometer are in use only when the MU values are 40 or less. Use the runway followed by the MU number for each of the three runway segments, time of report, and a word describing the cause of the runway friction problem. Do not issue MU values when all three segments of the runway have values reported greater than 40.

EXAMPLE-

"Runway two seven, MU forty-two, forty-one, twenty-eight at one zero one eight Zulu, ice."

2. Issue the runway surface condition and/or the Runway Condition Reading (RCR), if provided, to all USAF and ANG aircraft. Issue the RCR to other aircraft upon pilot request.

EXAMPLE-

"Ice on runway, RCR zero five, patchy."

NOTE-

1. USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of the RCR code is dependent upon the pilot's having a "stopping capability chart" specifically applicable to his/her aircraft.

2. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

REFERENCE-

FAAO 7110.65, *Airport Conditions*, Para 4-7-12.

FAAO 7110.65, *Braking Action Advisories*, Para 3-3-5.

3-3-5. BRAKING ACTION ADVISORIES

a. When runway braking action reports are received from pilots or the airport management which include the terms "poor" or "nil" or whenever weather conditions are conducive to deteriorating or rapidly changing runway conditions, include on the ATIS broadcast the statement "Braking Action Advisories are in effect."

REFERENCE-

FAAO 7210.3, *Automatic Terminal Information Service (ATIS)*, Para 10-4-1.

b. During the time Braking Action Advisories are in effect, take the following action:

1. Issue the latest braking action report for the runway in use to each arriving and departing aircraft early enough to be of benefit to the pilot. When

possible, include reports from heavy jet aircraft when the arriving or departing aircraft is a heavy jet.

2. If no report has been received for the runway of intended use, issue an advisory to that effect.

PHRASEOLOGY-

NO BRAKING ACTION REPORTS RECEIVED FOR RUNWAY (runway number).

3. Advise the airport management that runway braking action reports of "poor" or "nil" have been received.

REFERENCE-

FAAO 7210.3, *Letters of Agreement*, Para 4-3-1.

4. Solicit PIREP's of runway braking action.

REFERENCE-

FAAO 7110.65, *PIREP Information*, Para 2-6-3.

c. Include runway friction measurement/values received from airport management on the ATIS. Furnish the information when requested by the pilot in accordance with para 3-3-4, Braking Action.

REFERENCE-

FAAO 7110.65, *Content*, Para 2-9-3.

FAAO 7110.65, *Departure Information*, Para 3-9-1.

FAAO 7110.65, *Landing Information*, Para 3-10-1.

FAAO 7110.65, *Airport Conditions*, Para 4-7-12.

3-3-6. ARRESTING SYSTEM OPERATION

a. For normal operations, arresting systems remotely controlled by ATC shall remain in the retracted or down position.

NOTE-

1. *USN- Runway Arresting Gear- barriers are not operated by ATC personnel. Readiness/rigging of the equipment is the responsibility of the operations department.*

2. *A request to raise a barrier or hook cable means the barrier or cable on the departure end of the runway. If an approach end engagement is required, the pilot or military authority will specifically request that the approach end cable be raised.*

REFERENCE-

FAAO 7610.4, *Chapter 9, Section 3. Aircraft Arresting System, Single Frequency Approach (SFA), Simulated Flameout (SFO), Celestial Navigation (CELNAV) Training*, Para 9-3-1 through Para 9-3-8.

b. Raise aircraft arresting systems whenever:

1. Requested by a pilot.

NOTE-

The standard emergency phraseology for a pilot requesting an arresting system to be raised for immediate engagement is:

"BARRIER - BARRIER - BARRIER"

or

"CABLE - CABLE - CABLE."

2. Requested by military authority; e.g., airfield manager, supervisor of flying, mobile control officer, etc..

NOTE-

USAF. Web barriers at the departure end of the runway may remain in the up position when requested by the senior operational commander. The IFR Enroute Supplement and AP-1 will describe specific barrier configuration. ATC will advise transient aircraft of the barrier configuration using the phraseology in subpara c, below.

3. A military jet aircraft is landing with known or suspected radio failure or conditions (drag chute/hydraulic/electrical failure, etc.) that indicate an arresting system may be needed. Exceptions are authorized for military aircraft which cannot engage an arresting system (C-9, C-141, C-5, T-39, etc.) and should be identified in a letter of agreement and/or appropriate military directive.

c. When requested by military authority due to freezing weather conditions or malfunction of the activating mechanism, the barrier/cable may remain in a raised position provided aircraft are advised.

PHRASEOLOGY-

YOUR DEPARTURE/LANDING WILL BE TOWARD/OVER A RAISED BARRIER/CABLE ON RUNWAY (number), (location, distance, as appropriate).

d. Inform civil and U.S. Army aircraft whenever rubber supported cables are in place at the approach end of the landing runway, and include the distance of the cables from the threshold. This information may be omitted if it is published in the "Notices to Airmen" publication/DOD FLIP.

EXAMPLE-

"Runway One Four arresting cable one thousand feet from threshold."

e. When arresting system operation has been requested, inform the pilot of the indicated barrier/cable position.

PHRASEOLOGY-

(Identification), BARRIER/CABLE INDICATES UP/DOWN. CLEARED FOR TAKEOFF/TO LAND.

f. Time permitting, advise pilots of the availability of all arresting systems on the runway in question when a pilot requests barrier information.

g. If an aircraft engages a raised barrier/cable, initiate crash alarm procedures immediately.

h. For preplanned practice engagements not associated with emergencies, crash alarm systems need not be activated if, in accordance with local military operating procedures, all required notifications are made before the practice engagement.

REFERENCE-

FAAO 7110.65, *Airport Conditions*, Para 4-7-12.

3-3-7. FAR FIELD MONITOR (FFM) REMOTE STATUS UNIT

a. Background.

1. To meet the demand for more facilities capable of operating under CAT III weather, Type II equipment is being upgraded to Integrity Level 3. This integrity level will support operations which place a high degree of reliance on ILS guidance for positioning through touchdown.

2. Installation of the FFM remote status indicating units is necessary to attain the integrity necessary to meet internationally agreed upon reliability values in support of CAT III operations on Type II ILS equipment. The remote status indicating unit used in conjunction with Type II equipment adds a third integrity test; thereby, producing an approach aid which has integrity capable of providing Level 3 service.

3. The remote status sensing unit, when installed in the tower cab, will give immediate indications of localizer out-of-tolerance conditions. The alarm in the FFM remote status sensing unit indicates an inoperative or an out-of-tolerance localizer signal; e.g., the course may have shifted due to equipment malfunction or vehicle/aircraft encroachment into the critical area.

b. Procedures.

1. Operation of the FFM remote sensing unit will be based on the prevailing weather. The FFM remote sensing unit shall be operational when the weather is below CAT I ILS minimums.

2. When the weather is less than that required for CAT I operations, the GRN-27 FFM remote status sensing unit shall be set at:

(a) "CAT II" when the RVR is less than 2,400 feet.

(b) "CAT III" when the RVR is less than 1,200 feet.

3. When the remote status unit indicates that the localizer FFM is in alarm (aural warning following the preset delay) and:

(a) The aircraft is outside the middle marker (MM), check for encroachment those portions of the critical area that can be seen from the tower. It is understood that the entire critical area may not be visible due to low ceilings and poor visibility. The check is strictly to determine possible causal factors for the out-of-tolerance situation. If the alarm has not cleared prior to the aircraft's arriving at the MM, immediately issue an advisory that the FFM remote status sensing unit indicates the localizer is unreliable.

(b) The aircraft is between the MM and the inner marker (IM), immediately issue an advisory that the FFM remote status sensing unit indicates the localizer is unreliable.

PHRASEOLOGY-

CAUTION, MONITOR INDICATES RUNWAY (number) LOCALIZER UNRELIABLE.

(c) The aircraft has passed the IM, there is no action requirement. Although the FFM has been modified with filters which dampen the effect of false alarms, you may expect alarms when aircraft are located between the FFM and the localizer antenna either on landing or on takeoff.

REFERENCE-

FAAO 7110.65, *Airport Conditions*, Para 4-7-12.

Section 4. Airport Lighting

3-4-1. EMERGENCY LIGHTING

Whenever you become aware that an emergency has or will occur, take action to provide for the operation of all appropriate airport lighting aids as required.

REFERENCE-

FAAO 7110.65, *Lighting Requirements, Para 10-4-2.*

3-4-2. RUNWAY END IDENTIFIER LIGHTS

When separate on-off controls are provided, operate runway end identifier lights:

a. When the associated runway lights are lighted. Turn the REIL off after:

1. An arriving aircraft has landed.
2. A departing aircraft has left the traffic pattern area.

3. It is determined that the lights are of no further use to the pilot.

b. As required by facility directives to meet local conditions.

c. As requested by the pilot.

d. Operate intensity setting in accordance with the values in TBL 3-4-1 except as prescribed in subparas b and c above.

REIL Intensity Setting-Three Step System

Settings	Visibility	
	Day	Night
3	Less than 2 miles	Less than 1 mile
2	2 to 5 miles inclusive	1 to but not including 3 miles
1	When requested	3 miles or more

TBL 3-4-1

3-4-3. VISUAL APPROACH SLOPE INDICATORS (VASI)

VASI systems with remote on-off switching shall be operated when they serve the runway in use and where intensities are controlled in accordance with TBL 3-4-1 and TBL 3-4-2 except:

- a. As required by facility directives to meet local conditions.
- b. As required by the pilot.

VASI Intensity Setting-Two Step System

Step	Period/Condition
High	Day-Sunrise to sunset.
Low	Night-Sunset to sunrise.

TBL 3-4-2

VASI Intensity Setting-Three Step System

Step	Period/Condition
High	Day-Sunrise to sunset.
Medium	Twilight-From sunset to 30 minutes after sunset and from 30 minutes before sunrise to sunrise,* and during twilight in Alaska.
Low	Night-Sunset to sunrise.

*During a 1 year period, twilight may vary 26 to 43 minutes between 25 and 49N latitude.

TBL 3-4-3

NOTE-

The basic FAA standard for VASI systems permits independent operation by means of photoelectric device. This system has no on-off control feature and is intended for continuous operation. Other VASI systems in use include those that are operated remotely from the control tower. These systems may consist of either a photoelectric intensity control with only an on-off switch, a two step intensity system, or a three step intensity system.

REFERENCE-

FAAO 7210.3, *Visual Approach Slope Indicator (VASI) Systems, Para 10-6-5.*

FAAO 6850.2, *Visual Guidance Lighting Systems.*

3-4-4. APPROACH LIGHTS

Operate approach lights:

a. Between sunset and sunrise when one of the following conditions exists:

1. They serve the landing runway.
2. They serve a runway to which an approach is being made but aircraft will land on another runway.

b. Between sunrise and sunset when the ceiling is less than 1,000 feet or the prevailing visibility is 5 miles or less and approaches are being made to:

1. A landing runway served by the lights.
 2. A runway served by the lights but aircraft are landing on another runway.
 3. The airport, but landing will be made on a runway served by the lights.
- c. As requested by the pilot.

d. As you deem necessary, if not contrary to pilot's request.

NOTE-

In the interest of energy conservation, the ALS should be turned off when not needed for aircraft operations.

REFERENCE-

FAAO 7110.65, *ALS Intensity Settings, Para 3-4-5.*

3-4-5. ALS INTENSITY SETTINGS

When operating ALS as prescribed in para 3-4-4, Approach Lights, operate intensity controls in accordance with the values in TBL 3-4-4 except:

a. When facility directives specify other settings to meet local atmospheric, topographic, and twilight conditions.

b. As requested by the pilot.

c. As you deem necessary, if not contrary to pilot's request.

ALS Intensity Setting

Step	Visibility- (Applicable to runway served by lights)	
	Day	Night
5	Less than 1 mile*	When requested
4	1 to but not including 3 miles	When requested
3	3 to but not including 5 miles	Less than 1 mile*
2	5 to but not including 7 miles	1 to 3 miles inclusive
1	When requested	Greater than 3 miles
*and/or 6,000 feet or less of the RVR on the runway served by the ALS and RVR.		

TBL 3-4-4

NOTE-

Daylight steps 2 and 3 provide recommended settings applicable to conditions in subparas b and c. At night, use step 4 or 5 only when requested by a pilot.

3-4-6. SEQUENCED FLASHING LIGHTS (SFL)

Operate Sequenced Flashing Lights:

NOTE-

SFL are a component of the ALS and cannot be operated when the ALS is off.

a. When the visibility is less than 3 miles and instrument approaches are being made to the runway served by the associated ALS.

b. As requested by the pilot.

c. As you deem necessary, if not contrary to pilot's request.

3-4-7. MALSR/ODALS

Operate MALSR/ODALS that have separate on-off and intensity setting controls in accordance with TBL 3-4-5 and TBL 3-4-6 except:

a. When facility directives specify other settings to meet local atmospheric, topographic, and twilight conditions.

b. As requested by the pilot.

c. As you deem necessary, if not contrary to pilot's request.

Two Step MALSR/One Step RAIL/Two Step ODALS

Settings		Visibility	
		Day	Night
MALSR/ODALS RAIL	Hi On	Less than 3 miles	Less than 3 miles
MALSR/ODALS RAIL	Low Off	When requested	3 miles or more
*At locations providing part-time control tower service, if duplicate controls are not provided in the associated FSS, the MALSR/ODALS shall be set to low intensity during the hours of darkness when the tower is not staffed.			

TBL 3-4-5

Three Step MALSR/Three Step RAIL/Three Step ODALS

Settings	Visibility	
	Day	Night
3	Less than 2 miles	Less than 1 mile
2	2 to 5 miles inclusive	1 to but not including 3 miles*
1	When requested	3 miles or more
*At locations providing part-time control tower service, if duplicate controls are not provided in the FSS on the airport, the air-to-ground radio link shall be activated during the hours of darkness when the tower is unmanned. If there is no radio air-to-ground control, the MALSR/ODALS shall be set on intensity setting 2 during the hours of darkness when the tower is not staffed.		

TBL 3-4-6

REFERENCE-

FAAO 7210.3, *Operation of Lights When Tower is Closed, Para 10-6-2.*

3-4-8. ALSF-2/SSALR

a. When the prevailing visibility is 3/4 mile or less or the RVR is 4,000 feet or less, operate the ALSF-2 system as follows:

1. As requested by the pilot.

2. As you deem necessary if not contrary to pilot request.

b. Operate the SSALR system when the conditions in subpara a are not a factor.

3-4-9. RUNWAY EDGE LIGHTS

Operate the runway edge light system/s serving the runway/s in use as follows:

a. Between sunset and sunrise, turn the lights on:

1. For departures. Before an aircraft taxis onto the runway and until it leaves the Class B, Class C, or Class D surface area.

2. For arrivals:

(a) IFR aircraft—Before the aircraft begins final approach, or

(b) VFR aircraft—Before the aircraft enters the Class B, Class C, or Class D surface area, and

(c) Until the aircraft has taxied off the landing runway.

b. Between sunrise and sunset, turn the lights on as shown in subparas a1 and a2 when the surface visibility is less than 2 miles.

c. As required by facility directives to meet local conditions.

d. Different from subparas a, b, or c above, when:

1. You consider it necessary, or

2. Requested by a pilot and no other known aircraft will be adversely affected.

NOTE-

Pilots may request lights to be turned on or off contrary to subparas a, b, or c. However, 14 CFR Part 135 operators are required to land/takeoff on lighted runways/heliport landing areas at night.

e. Do not turn on the runway edge lights when a NOTAM closing the runway is in effect.

NOTE-

Application concerns use for takeoffs/landings/approaches and does not preclude turning lights on for use of unaffected portions of a runway for taxiing aircraft, surface vehicles, maintenance, repair, etc..

REFERENCE-

FAAO 7110.65, Simultaneous Approach and Runway Edge Light Operation, Para 3-4-14.

FAAO 7210.3, Incompatible Light System Operation, Para 10-6-3.

FAAO 7210.3, Runway Edge Lights Associated With Medium Approach Light System/Runway Alignment Indicator Lights, Para 10-6-8.

3-4-10. HIGH INTENSITY RUNWAY, RUNWAY CENTERLINE, AND TOUCHDOWN ZONE LIGHTS

Operate high intensity runway and associated runway centerline and touchdown zone lights in accordance with TBL 3-4-7, except:

a. Where a facility directive specifies other settings to meet local conditions.

b. As requested by the pilot.

c. As you deem necessary, if not contrary to pilot request.

HIRL, RCLS, TDZL Intensity Setting

Step	Visibility	
	Day	Night
5	Less than 1 mile*	When requested
4	1 to but not including 2 miles*	Less than 1 mile*
3	2 to but not including 3 miles	1 to but not including 3 miles*
2	When requested	3 to 5 miles inclusive
1	When requested	More than 5 miles

*and/or appropriate RVR/RVV equivalent.

TBL 3-4-7

3-4-11. HIRL ASSOCIATED WITH MALSR

Operate HIRL which control the associated MALSR in accordance with TBL 3-4-8, except:

a. As requested by the pilot.

b. As you deem necessary, if not contrary to the pilot's request.

HIRL Associated with MALSR

Step	Visibility	
	Day	Night
5	Less than 1 mile	When requested
4	1 to but not including 2 miles	Less than 1 mile
3	2 to but not including 3 miles	1 to but not including 3 miles
2	When requested	3 to 5 miles inclusive
1	When requested	More than 5 miles

TBL 3-4-8

NOTE-

When going from a given brightness step setting to a lower setting, rotation of the brightness control to a point below the intended step setting and then back to the appropriate step setting will ensure that the MALSR will operate at the appropriate brightness.

REFERENCE-

FAAO 7110.65, Medium Intensity Runway Lights, Para 3-4-13.

3-4-12. HIRL CHANGES AFFECTING RVR

Keep the appropriate approach controller or PAR controller informed, in advance if possible, of HIRL changes that affect RVR.

3-4-13. MEDIUM INTENSITY RUNWAY LIGHTS

Operate MIRL or MIRL which control the associated MALSR in accordance with TBL 3-4-9, except:

- a. As requested by the pilot.
- b. As you deem necessary, if not contrary to the pilot's request.

MIRL Intensity Setting

Step	Visibility	
	Day	Night
3	Less than 2 miles	Less than 1 mile
2	2 to 3 miles	1 to 3 miles
1	When requested	More than 3 miles

TBL 3-4-9

REFERENCE-

FAAO 7110.65, HIRL Associated With MALSR, Para 3-4-11.

3-4-14. SIMULTANEOUS APPROACH AND RUNWAY EDGE LIGHT OPERATION

Turn on the runway edge lights for the runway in use whenever the associated approach lights are on. If multiple runway light selection is not possible, you may leave the approach lights on and switch the runway lights to another runway to accommodate another aircraft.

REFERENCE-

FAAO 7110.65, Runway Edge Lights, Para 3-4-9.

3-4-15. HIGH SPEED TURNOFF LIGHTS

Operate high speed turnoff lights:

- a. Whenever the associated runway lights are used for arriving aircraft. Leave them on until the aircraft has either entered a taxiway or passed the last light.
- b. As required by facility directives to meet local conditions.
- c. As requested by the pilot.

3-4-16. TAXIWAY LIGHTS

Operate taxiway lights in accordance with TBL 3-4-9, TBL 3-4-10, or TBL 3-4-11 except:

- a. Where a facility directive specifies other settings or times to meet local conditions.
- b. As requested by the pilot.
- c. As you deem necessary, if not contrary to pilot request.

Three Step Taxiway Lights

Step	Visibility	
	Day	Night
3	Less than 1 mile	When requested
2	When requested	Less than 1 mile
1	When requested	1 mile or more

TBL 3-4-10

Five Step Taxiway Lights

Step	Visibility	
	Day	Night
5	Less than 1 mile	When requested
4	When requested	Less than 1 mile
3	When requested	1 mile or more
1 & 2	When requested	When requested

TBL 3-4-11

One Step Taxiway Lights

Day	Night
Less than 1 mile	On

TBL 3-4-12

NOTE-

AC/150 5340-24 contains recommended brightness levels for variable setting taxiway lights.

3-4-17. OBSTRUCTION LIGHTS

If controls are provided, turn the lights on between sunset and sunrise.

3-4-18. ROTATING BEACON

If controls are provided, turn the rotating beacon on:

- a. Between sunset and sunrise.
- b. Between sunrise and sunset when the reported ceiling or visibility is below basic VFR minima.

Section 5. Runway Selection

3-5-1. SELECTION

a. Except where a "runway use" program is in effect, use the runway most nearly aligned with the wind when 5 knots or more or the "calm wind" runway when less than 5 knots (set tetrahedron accordingly) unless use of another runway:

NOTE-

1. *If a pilot prefers to use a runway different from that specified, the pilot is expected to advise ATC.*

2. *At airports where a "runway use" program is established, ATC will assign runways deemed to have the least noise impact. If in the interest of safety a runway different from that specified is preferred, the pilot is expected to advise ATC accordingly. ATC will honor such requests and advise pilots when the requested runway is noise sensitive.*

REFERENCE-

FAAO 8400.9, *National Safety and Operational Criteria for Runway Use Programs.*

1. Will be operationally advantageous, or
2. Is requested by the pilot.

b. When conducting aircraft operations on other than the advertised active runway, state the runway in use.

3-5-2. STOL RUNWAYS

Use STOL runways as follows:

a. A designated STOL runway may be assigned only when requested by the pilot or as specified in a letter of agreement with an aircraft operator.

b. Issue the measured STOL runway length if the pilot requests it.

3-5-3. TAILWIND COMPONENTS

When authorizing use of runways and a tailwind component exists, always state both wind direction and velocity.

NOTE-

The wind may be described as "calm" when appropriate.

REFERENCE-

FAAO 7110.65, *Calm Wind Conditions, Para 2-6-5.*

Section 6. Airport Surface Detection Procedures

3-6-1. EQUIPMENT USAGE

a. ASDE/AMASS shall be operated continuously to augment visual observation of aircraft landing or departing, and aircraft or vehicular movements on runways and taxiways, or other areas of the movement area.

b. The operational status of ASDE/AMASS shall be determined during the relief briefing, or as soon as possible after assuming responsibility for the associated control position.

3-6-2. INFORMATION USAGE

a. ASDE/AMASS derived information may be used to:

1. Formulate clearances and control instructions to aircraft.

2. Formulate control instructions to vehicles on the movement area.

REFERENCE-

FAAO 7210.3, *Radar Use*, Para 3-7-2b2.

3. Position aircraft and vehicles using the movement area.

4. Determine the exact location of aircraft and vehicles, or spatial relationship to other aircraft/vehicles on the movement area.

5. Monitor compliance with control instructions by aircraft and vehicles on taxiways and runways.

6. Confirm pilot reported positions.

7. Provide directional taxi information, as appropriate.

PHRASEOLOGY-

TURN (left/right) ON THE TAXIWAY/RUNWAY YOU ARE APPROACHING.

b. Do not provide specific navigational guidance (exact headings to be followed) unless an emergency exists or by mutual agreement with the pilot.

NOTE-

It remains the pilot's responsibility to navigate visually via routes to the clearance limit specified by the controller and to avoid other parked or taxiing aircraft, vehicles, or persons in the movement area.

3-6-3. IDENTIFICATION

To identify an observed target on the ASDE/AMASS display, correlate its position with one or more of the following:

a. Pilot position report.

b. Controller's visual observation.

c. An identified target observed on the ASR or BRITE/DBRITE/TDW display.

3-6-4. AMASS ALERT RESPONSES

When the system alarms, the controller shall immediately assess the situation visually and as presented on the ASDE/AMASS display, then take appropriate action, as follows:

a. When an arrival aircraft (still airborne, prior to the landing threshold) activates an alarm, the controller shall issue go-around instructions. (Exception: Alarms involving known formation flights, as they cross the landing threshold, may be disregarded if all other factors are acceptable.)

b. For other AMASS alarms, issue instructions/clearances based on good judgment and evaluation of the situation at hand.

Section 7. Taxi and Ground Movement Procedures

3-7-1. GROUND TRAFFIC MOVEMENT

Issue by radio or directional light signals specific instructions which approve or disapprove the movement of aircraft, vehicles, equipment, or personnel on the movement area.

a. Do not issue *conditional* instructions that are dependent upon the movement of an arrival aircraft on or approaching the runway or a departure aircraft established on a takeoff roll. Do not say, "Taxi into position and hold behind landing traffic," or "Taxi/proceed across Runway Three Six behind departing/landing Jetstar." The above requirements do not preclude issuing instructions to follow an aircraft observed to be operating on the movement area in accordance with an ATC clearance/instruction and in such a manner that the instructions to follow are not ambiguous.

b. Do not use the word "cleared" in conjunction with authorization for aircraft to taxi or equipment/vehicle/personnel operations. Use the prefix "taxi," "proceed," or "hold," as appropriate, for aircraft instructions and "proceed" or "hold" for equipment/vehicles/personnel.

c. Intersection departures may be initiated by a controller or a controller may authorize an intersection departure if a pilot requests. Issue the measured distance from the intersection to the runway end rounded "down" to the nearest 50 feet to any pilot who requests and to all military aircraft, unless use of the intersection is covered in appropriate directives.

NOTE-

Exceptions are authorized where specific military aircraft routinely make intersection takeoffs and procedures are defined in appropriate directives. The authority exercising operational control of such aircraft ensures that all pilots are thoroughly familiar with these procedures, including the usable runway length from the applicable intersection.

d. State the runway intersection when authorizing an aircraft to taxi into position to hold or when clearing an aircraft for takeoff from an intersection.

PHRASEOLOGY-

RUNWAY (number) AT (taxiway designator) (further instructions as needed).

RUNWAY (number) AT (taxiway designator), TAXI INTO POSITION AND HOLD.

If requested or required,

RUNWAY (number) AT (taxiway designator)

INTERSECTION DEPARTURE, (remaining length) FEET AVAILABLE.

3-7-2. TAXI AND GROUND MOVEMENT OPERATIONS

Issue, as required or requested, the route for the aircraft/vehicle to follow on the movement area in concise and easy to understand terms. When a taxi clearance to a runway is issued to an aircraft, confirm the aircraft has the correct runway assignment.

NOTE-

1. *A pilot's read back of taxi instructions with the runway assignment can be considered confirmation of runway assignment.*

2. *Movement of aircraft or vehicles on nonmovement areas is the responsibility of the pilot, the aircraft operator, or the airport management.*

a. When authorizing a vehicle to proceed on the movement area, or an aircraft to taxi to any point other than an assigned takeoff runway, absence of holding instructions authorizes an aircraft/vehicle to cross all taxiways and runways that intersect the taxi route. If it is the intent to hold the aircraft/vehicle short of any given point along the taxi route, issue the route, if necessary, then state the holding instructions.

NOTE-

Movement of aircraft or vehicles on nonmovement areas is the responsibility of the pilot, the aircraft operator, or the airport management.

PHRASEOLOGY-

HOLD POSITION.

HOLD FOR (reason)

CROSS (runway/taxiway)

or

TAXI/CONTINUE TAXIING/PROCEED/VIA (route),

or

ON (runway number or taxiways, etc.),

or

TO (location),

or

(direction),

or

ACROSS RUNWAY (number).

or

VIA (route), HOLD SHORT OF (location)

or

FOLLOW (traffic) (restrictions as necessary)

or

BEHIND (traffic).

EXAMPLE-

"Cross Runway Two Eight Left."

"Taxi/continue taxiing/proceed to the hangar."

"Taxi/continue taxiing/proceed straight ahead then via ramp to the hangar."

"Taxi/continue taxiing/proceed on Taxiway Charlie, hold short of Runway Two Seven."

b. When authorizing an aircraft to taxi to an assigned takeoff runway and hold short instructions are not issued, specify the runway preceded by "taxi to," and issue taxi instructions if necessary. This authorizes the aircraft to "cross" all runways/taxiways which the taxi route intersects except the assigned takeoff runway. This does not authorize the aircraft to "enter" or "cross" the assigned takeoff runway at any point.

PHRASEOLOGY-

TAXI TO RUNWAY (number) VIA . . .

EXAMPLE-

"Taxi to Runway One Two."

"Taxi to Runway Three Six via Taxiway Echo."

c. Specify the runway for departure, any necessary taxi instructions, and hold short restrictions when an aircraft will be required to hold short of a runway along the taxi route.

PHRASEOLOGY-

RUNWAY (number),

TAXI/PROCEED VIA (route if necessary),

HOLD SHORT OF (runway number)

or

HOLD SHORT OF (location)

or

ON (taxi strip, runup pad, etc.),

and if necessary,

TRAFFIC (traffic information),

or

FOR (reason).

EXAMPLE-

"Runway Three Six Left, taxi via taxiway Charlie, hold short of Runway Two Seven Right."

"Runway Three Six Left, hold short of Runway Two Seven Right."

d. Request a read back of runway hold short instructions when it is not received from the pilot/vehicle operator.

PHRASEOLOGY-

READ BACK HOLD INSTRUCTIONS.

EXAMPLE-

1. "American Four Ninety Two, Runway Three Six Left, taxi via taxiway Charlie, hold short of Runway Two Seven Right."

"American Four Ninety Two, Roger."

"American Four Ninety Two, read back hold instructions."

2. "Cleveland Tower, American Sixty Three is ready for departure."

"American Sixty Three, hold short of Runway Two Three Left, traffic one mile final."

"American Sixty Three, Roger."

"American Sixty Three, read back hold instructions."

3. "OPS Three proceed via taxiway Charlie hold short of Runway Two Seven."

"OPS Three, Roger."

"OPS Three, read back hold instructions."

NOTE-

Read back hold instructions phraseology may be initiated for any point on a movement area when the controller believes the read back is necessary.

e. Issue progressive taxi/ground movement instructions when:

1. Pilot/operator requests.
2. The specialist deems it necessary due to traffic or field conditions, e.g., construction or closed taxiways.
3. As necessary during reduced visibility, especially when the taxi route is not visible from the tower.
- f. Progressive ground movement instructions include step-by-step routing directions.

REFERENCE-

FAAO 7110.65, *Runway Proximity*, Para 3-7-4.

FAAO 7110.65, *Taxi and Ground Movement Operation*, Para 3-11-1.

g. Instructions to expedite a taxiing aircraft or a moving vehicle.

PHRASEOLOGY-

TAXI WITHOUT DELAY (traffic if necessary).

EXIT/PROCEED/CROSS

(runway/taxiway) **WITHOUT DELAY**.

3-7-3. GROUND OPERATIONS

WAKE TURBULENCE APPLICATION

Avoid clearances which require:

- a. Heavy jet aircraft to use greater than normal taxiing power.
- b. Small aircraft or helicopters to taxi in close proximity to taxiing or hover-taxi helicopters.

REFERENCE-

AC 90-23, *Aircraft Wake Turbulence*, Para 10 and Para 11.

3-7-4. RUNWAY PROXIMITY

Hold a taxiing aircraft or vehicle clear of the runway as follows:

- a. Instruct aircraft or vehicle to hold short of a specific runway.
- b. Instruct aircraft or vehicle to hold at a specified point.
- c. Issue traffic information as necessary.

PHRASEOLOGY-

HOLD SHORT OF/AT (runway number or specific point), (traffic or other information).

NOTE-

Establishing hold lines/signs is the responsibility of the airport manager. The standards for surface measurements, markings, and signs are contained in AC 150/5300-13, Airport Design; AC 150/5340-1, Standards for Airport Markings, and AC 150/5340-18, Standards for Airport Sign Systems. The operator is responsible for properly positioning the aircraft, vehicle, or equipment at the appropriate hold line/sign or designated point. The requirements in para 3-1-12, Visually Scanning Runways, remain valid as appropriate.

REFERENCE-

FAAO 7110.65, *Taxi and Ground Movement Operations*, Para 3-7-2.

FAAO 7110.65, *Altitude Restricted Low Approach*, Para 3-10-10.

FAAO 7110.65, *Vehicles/Equipment/Personnel on Runways*, Para 3-1-5.

3-7-5. PRECISION APPROACH CRITICAL AREA

a. ILS critical area dimensions are described in FAAO 6750.16, *Siting Criteria for Instrument Landing Systems*. Aircraft and vehicle access to the ILS/MLS critical area must be controlled to ensure the integrity of ILS/MLS course signals whenever conditions are less than reported ceiling 800 feet and/or visibility less than 2 miles. Do not authorize vehicles/aircraft to operate in or over the critical area, except as specified in subpara a1, whenever an arriving aircraft is inside the ILS outer marker (OM) or the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway.

PHRASEOLOGY-

HOLD SHORT OF (runway) **ILS/MLS CRITICAL AREA**.

1. LOCALIZER CRITICAL AREA

(a) Do not authorize vehicle or aircraft operations in or over the area when an arriving aircraft is inside the ILS OM or the fix used in lieu of the OM when conditions are less than reported ceiling 800 feet and/or visibility less than 2 miles, except:

(1) A preceding arriving aircraft on the same or another runway that passes over or through the area while landing or exiting the runway.

(2) A preceding departing aircraft or missed approach on the same or another runway that passes through or over the area.

(b) In addition to subpara a1(a), do not authorize vehicles or aircraft operations in or over the area when an arriving aircraft is inside the middle marker when conditions are less than reported ceiling 200 feet and/or RVR 2,000 feet.

2. **GLIDESLOPE CRITICAL AREA**. Do not authorize vehicles or aircraft operations in or over the area when an arriving aircraft is inside the ILS OM or

the fix used in lieu of the OM unless the arriving aircraft has reported the runway in sight or is circling to land on another runway when conditions are less than reported ceiling 800 feet and/or visibility less than 2 miles.

b. Air carriers commonly conduct "coupled" or "autoland" operations to satisfy maintenance, training, or reliability program requirements. Promptly issue an advisory if the critical area will not be protected when an arriving aircraft advises that a "coupled," "CATIII," "autoland," or similar type approach will be conducted and the weather is reported ceiling of 800 feet or more, and the visibility is 2 miles or more.

PHRASEOLOGY-

ILS/MLS CRITICAL AREA NOT PROTECTED.

c. The Department of Defense (DOD) is authorized

to define criteria for protection of precision approach critical areas at military controlled airports. This protection is provided to all aircraft operating at that military controlled airport. Waiver authority for DOD precision approach critical area criteria rests with the appropriate military authority.

NOTE-

Signs and markings are installed by the airport operator to define the ILS/MLS critical area. No point along the longitudinal axis of the aircraft is permitted past the hold line for holding purposes. The operator is responsible to properly position the aircraft, vehicle, or equipment at the appropriate hold line/sign or designated point. The requirements in para 3-1-12, Visually Scanning Runways, remain valid as appropriate.

REFERENCE-

AC150/5340-1, Standards for Airport Markings.

Section 8. Spacing and Sequencing

3-8-1. SEQUENCE/SPACING APPLICATION

Establish the sequence of arriving and departing aircraft by requiring them to adjust flight or ground operation, as necessary, to achieve proper spacing.

PHRASEOLOGY-

CLEARED FOR TAKEOFF.

CLEARED FOR TAKEOFF OR HOLD SHORT/HOLD IN POSITION/TAXI OFF THE RUNWAY (traffic).

EXTEND DOWNWIND.

MAKE SHORT APPROACH.

NUMBER (landing sequence number),

FOLLOW (description and location of traffic),

or if traffic is utilizing another runway,

TRAFFIC (description and location) **LANDING RUNWAY** (number of runway being used).

CIRCLE THE AIRPORT.

MAKE LEFT/RIGHT THREE-SIXTY/TWO SEVENTY.

GO AROUND.

CLEARED TO LAND.

CLEARED:

TOUCH-AND-GO,
or

STOP-AND-GO,
or

LOW APPROACH.

CLEARED FOR THE OPTION,

or

OPTION APPROVED,

or

UNABLE OPTION, (alternate instructions).

or

UNABLE (type of option), **OTHER OPTIONS APPROVED.**

NOTE-

1. The "Cleared for the Option" procedure will permit an instructor pilot/flight examiner/pilot the option to make a touch-and-go, low approach, missed approach, stop-and-go, or full stop landing. This procedure will only be used at those locations with an operational control tower and will be subject to ATC approval.

2. For proper helicopter spacing, speed adjustments may be more practical than course changes.

3. Read back of hold short instructions apply when hold instructions are issued to a pilot in lieu of a takeoff clearance.

REFERENCE-

FAAO 7110.65, Taxi and Ground Movement Operations, Para 3-7-2.

3-8-2. TOUCH-AND-GO OR STOP-AND-GO OR LOW APPROACH

Consider an aircraft cleared for touch-and-go, stop-and-go, or low approach as an arriving aircraft until it touches down (for touch-and-go), or makes a complete stop (for stop-and-go), or crosses the landing threshold (for low approach), and thereafter as a departing aircraft.

REFERENCE-

FAAO 7110.65, Vehicles/Equipment/Personnel on Runways, Para 3-1-5.
FAAO 7110.65, Wake Turbulence Separation for Intersection Departures, Para 3-9-7.

3-8-3. SIMULTANEOUS SAME DIRECTION OPERATION

Authorize simultaneous, same direction operations on parallel runways, on parallel landing strips, or on a runway and a parallel landing strip only when the following conditions are met:

a. Operations are conducted in VFR conditions unless visual separation is applied.

b. Two-way radio communication is maintained with the aircraft involved and pertinent traffic information is issued.

c. The distance between the runways or landing strips is in accordance with the minima in TBL 3-8-1 (use the greater minimum if two categories are involved).

Same Direction Distance Minima

<i>Aircraft category</i>	<i>Minimum distance (feet) between parallel</i>	
	<i>Runway centerlines</i>	<i>Edges of adjacent strips or runway and strip</i>
Lightweight, single engine, propeller driven	300	200
Twin-engine, propeller driven	500	400
All others	700	600

TBL 3-8-1**3-8-4. SIMULTANEOUS OPPOSITE DIRECTION OPERATION**

Authorize simultaneous opposite direction operations on parallel runways, on parallel landing strips, or on a runway and a parallel landing strip only when the following conditions are met:

- a. Operations are conducted in VFR conditions.

- b. Two-way radio communication is maintained with the aircraft involved and pertinent traffic information is issued.

PHRASEOLOGY-

TRAFFIC (description) ARRIVING/DEPARTING/LOW APPROACH, OPPOSITE DIRECTION ON PARALLEL RUNWAY/LANDING STRIP.

- c. The distance between the runways or landing strips is in accordance with the minima in TBL 3-8-2.

Opposite Direction Distance Minima

<i>Type of Operation</i>	<i>Minimum distance (feet) between parallel</i>	
	<i>Runway centerlines</i>	<i>Edges of adjacent strips or runway and strip</i>
Between sunrise and sunset	1,400	1,400
Between sunset and sunrise	2,800	Not authorized

TBL 3-8-2

Section 9. Departure Procedures and Separation

3-9-1. DEPARTURE INFORMATION

Provide current departure information, as appropriate, to departing aircraft.

a. Departure information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code.

b. Issue departure information by including the following:

1. Runway in use. (May be omitted if pilot states "have the numbers.")

2. Surface wind from direct readout dial, LLWAS, or automated weather observing system information display. (May be omitted if pilot states "have the numbers.")

3. Altimeter setting. (May be omitted if pilot states "have the numbers.")

REFERENCE-

FAAO 7110.65, *Current Settings*, Para 2-7-1.

c. Time, when requested.

d. Issue the official ceiling and visibility, when available, to a departing aircraft before takeoff as follows:

1. To a VFR aircraft when weather is below VFR conditions.

2. To an IFR aircraft when weather is below VFR conditions or highest takeoff minima, whichever is greater.

NOTE-

Standard takeoff minimums are published in 14 CFR Section 91.175(f). Takeoff minima other than standard are prescribed for specific airports/runways and published in a tabular form supplement to the NOS Instrument Approach Procedures Charts and appropriate FAA Forms 8260.

e. Taxi information, as necessary. You need not issue taxi route information unless the pilot specifically requests it.

f. **USAF NOT APPLICABLE.** An advisory to "check density altitude" when appropriate.

REFERENCE-

FAAO 7210.3, *Broadcast Density Altitude Advisory*, Para 2-10-6.

g. Issue braking action for the runway in use as received from pilots or the airport management when Braking Action Advisories are in effect.

REFERENCE-

FAAO 7110.65, *Altimeter Setting Issuance Below Lowest Usable FL*, Para 2-7-2.

FAAO 7110.65, *Low Level Wind Shear Advisories*, Para 3-1-8.

FAAO 7110.65, *Braking Action Advisories*, Para 3-3-5.

P/CG Term- *Braking Action Advisories*.

3-9-2. DEPARTURE DELAY INFORMATION

USA/USAF/USN NOT APPLICABLE

When gate-hold procedures are in effect, issue the following departure delay information as appropriate:

REFERENCE-

FAAO 7210.3, *Gate Hold Procedures*, Para 10-4-3.

a. Advise departing aircraft the time at which the pilot can expect to receive engine startup advisory.

PHRASEOLOGY-

GATE HOLD PROCEDURES ARE IN EFFECT. ALL AIRCRAFT CONTACT (position) ON (frequency) FOR ENGINE START TIME. EXPECT ENGINE START/TAXI (time).

b. Advise departing aircraft when to start engines and/or to advise when ready to taxi.

PHRASEOLOGY-

START ENGINES, ADVISE WHEN READY TO TAXI,

or

ADVISE WHEN READY TO TAXI.

c. If the pilot requests to hold in a delay absorbing area, the request shall be approved if space and traffic conditions permit.

d. Advise all aircraft on GC/FD frequency upon termination of gate hold procedures.

PHRASEOLOGY-

GATE HOLD PROCEDURES NO LONGER IN EFFECT.

3-9-3. DEPARTURE CONTROL INSTRUCTIONS

Inform departing IFR, SVFR, VFR aircraft receiving radar service, and TRSA VFR aircraft of the following:

a. Before takeoff.

1. Issue the appropriate departure control frequency and beacon code. The departure control frequency may be omitted if a DP has been or will be assigned and the departure control frequency is published on the DP.

PHRASEOLOGY-

DEPARTURE FREQUENCY WILL BE (frequency), SQUAWK (code).

2. Inform all departing IFR military turboprop/turbojet aircraft (except transport and cargo types) to change to departure control frequency. If the local controller has departure frequency override, transmit urgent instructions on this frequency. If the override capability does not exist, transmit urgent instructions on the emergency frequency.

PHRASEOLOGY-
CHANGE TO DEPARTURE.

3. **USAF.** USAF control towers are authorized to inform all departing IFR military transport/cargo type aircraft operating in formation flight to change to departure control frequency before takeoff.

b. After takeoff.

1. When the aircraft is about $\frac{1}{2}$ mile beyond the runway end, instruct civil aircraft, and military transport, and cargo types to contact departure control, provided further communication with you is not required.

2. Do not request departing military turboprop/turbojet aircraft (except transport and cargo types) to make radio frequency or radar beacon changes before the aircraft reaches 2,500 feet above the surface.

REFERENCE-
FAAO 7110.65, Visual Separation, Para 7-2-1.

3-9-4. TAXI INTO POSITION AND HOLD (TIPH)

a. The intent of TIPH is to position aircraft for an imminent departure. Authorize an aircraft to taxi into position and hold, except as restricted in subpara f, when takeoff clearance cannot be issued because of traffic. Issue traffic information to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the same runway and is clearly visible to the holding aircraft. Do not use conditional phrases such as "behind landing traffic" or "after the departing aircraft."

b. **USN NOT APPLICABLE.** First state the runway number followed by the taxi into position clearance when more than one runway is active.

PHRASEOLOGY-

RUNWAY (number), TAXI INTO POSITION AND HOLD.

Or, when only one runway is active:

TAXI INTO POSITION AND HOLD.

c. When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic that is cleared to land, touch-and-go, stop-and-go, or unrestricted low approach on the same runway.

EXAMPLE-

"United Five, runway one eight, taxi into position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."

Or, when only one runway is active:

"United Five, taxi into position and hold. Traffic a Boeing Seven Thirty Seven, six mile final."

d. **USAF.** When an aircraft is authorized to taxi into takeoff position to hold, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the aircraft taxiing into position.

e. Do not authorize an aircraft to taxi into position and hold when the departure point is not visible from the tower, unless the aircraft's position can be verified by ASDE or the runway is used for departures only.

f. Do not authorize an aircraft to taxi into position and hold at an intersection between sunset and sunrise or at anytime when the intersection is not visible from the tower.

g. **USN.** Do not authorize aircraft to taxi into takeoff position to hold simultaneously on intersecting runways.

PHRASEOLOGY-
CONTINUE HOLDING,

or

TAXI OFF THE RUNWAY.

REFERENCE-
FAAO 7110.65, Altitude Restricted Low Approach, Para 3-10-10.

h. When a local controller delivers or amends an ATC clearance to an aircraft awaiting departure and that aircraft is holding short of a runway or is holding in position on a runway, an additional clearance shall be issued to prevent the possibility of the aircraft inadvertently taxiing onto the runway and/or beginning takeoff

roll. In such cases, append one of the following ATC instructions as appropriate:

1. HOLD SHORT OF RUNWAY, *or*
2. HOLD IN POSITION.

i. USAF/USN. When issuing additional instructions or information to an aircraft holding in takeoff position, include instructions to continue holding or taxi off the runway, unless it is cleared for takeoff.

PHRASEOLOGY-
CONTINUE HOLDING,

or

TAXI OFF THE RUNWAY.

REFERENCE-
FAAO 7110.65, *Altitude Restricted Low Approach, Para 3-10-10.*

3-9-5. ANTICIPATING SEPARATION

Takeoff clearance needs not be withheld until prescribed separation exists if there is a reasonable assurance it will exist when the aircraft starts takeoff roll.

3-9-6. SAME RUNWAY SEPARATION

Separate a departing aircraft from a preceding departing or arriving aircraft using the same runway by ensuring that it does not begin takeoff roll until:

a. The other aircraft has departed and crossed the runway end or turned to avert any conflict. If you can determine distances by reference to suitable landmarks, the other aircraft needs only be airborne if the following minimum distance exists between aircraft:
(See FIG 3-9-1 and FIG 3-9-2.)

1. When only Category I aircraft are involved- 3,000 feet.
2. When a Category I aircraft is preceded by a Category II aircraft- 3,000 feet.
3. When either the succeeding or both are Category II aircraft- 4,500 feet.
4. When either is a Category III aircraft- 6,000 feet.
5. When the succeeding aircraft is a helicopter, visual separation may be applied in lieu of using distance minima.

**Same Runway Separation
[View 1]**

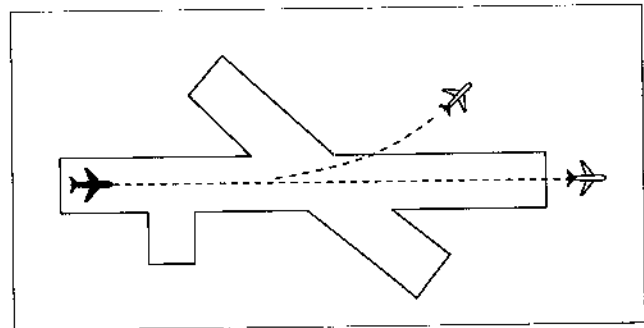


FIG 3-9-1

**Same Runway Separation
[View 2]**

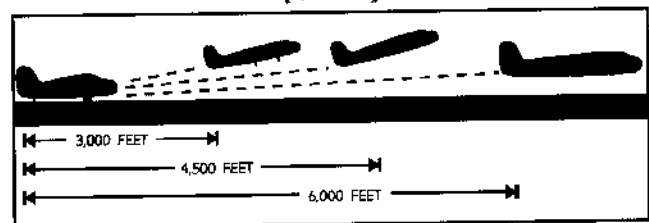


FIG 3-9-2

NOTE-

Aircraft same runway separation (SRS) categories are specified in Appendices A, B, and C and based upon the following definitions:

CATEGORY I- small aircraft weighing 12,500 lbs. or less, with a single propeller driven engine, and all helicopters.

CATEGORY II- small aircraft weighing 12,500 lbs. or less, with propeller driven twin-engines.

CATEGORY III- all other aircraft.

b. A preceding landing aircraft is clear of the runway.
(See FIG 3-9-3.)

Preceding Landing Aircraft Clear of Runway

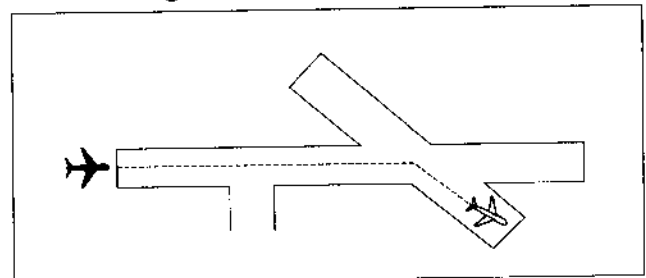


FIG 3-9-3

REFERENCE-
P/CG Term- *Clear of the Runway.*

WAKE TURBULENCE APPLICATION

c. Do not issue clearances which imply or indicate approval of rolling takeoffs by heavy jet aircraft except as provided in para 3-1-14, Ground Operations When Volcanic Ash is Present.

d. Do not issue clearances to a small aircraft to taxi into position and hold on the same runway behind a departing heavy jet aircraft to apply the necessary intervals.

REFERENCE-

AC 90-23, Aircraft Wake Turbulence.

e. The minima in para 5-5-4, Minima, may be applied in lieu of the 2 minute requirement in subpara f. When para 5-5-4, Minima, are applied, ensure that the appropriate radar separation exists at or prior to the time an aircraft becomes airborne when taking off behind a heavy jet/B757.

NOTE-

The pilot may request additional separation; i.e., 2 minutes vs. 4 miles, but should make this request before taxiing on the runway.

f. Separate IFR/VFR aircraft taking off behind a heavy jet/B757 departure by 2 minutes, when departing:

NOTE-

Takeoff clearance to the following aircraft should not be issued until 2 minutes after the heavy jet/B757 begins takeoff roll.

1. The same runway. (See FIG 3-9-4.)

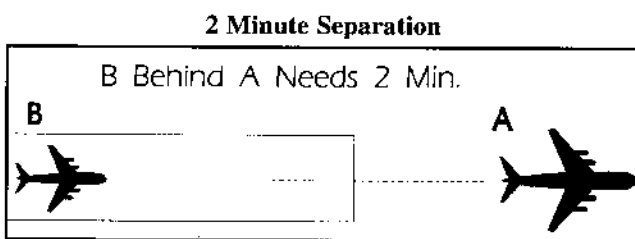


FIG 3-9-4

2. A parallel runway separated by less than 2,500 feet.

g. Separate an aircraft from a heavy jet/B757 when operating on a runway with a displaced landing threshold if projected flight paths will cross- 2 minutes when:

1. A departure follows a heavy jet/B757 arrival.
2. An arrival follows a heavy jet/B757 departure.

h. Air traffic controllers shall not approve pilot requests to deviate from the required wake turbulence time interval if the preceding aircraft is a heavy jet/B757.

i. Separate a small aircraft behind a large aircraft taking off or making a low/missed approach when utilizing opposite direction takeoffs on the same runway by 3 minutes unless a pilot has initiated a request to deviate from the 3-minute interval. In the latter case, issue a wake turbulence advisory before clearing the aircraft for takeoff.

NOTE-

1. A request for takeoff does not initiate a waiver request.
2. To initiate a waiver of the 3 minute rule, the request for takeoff must be accompanied by a request to deviate from the 3-minute rule.

REFERENCE-

FAAO 7110.65, Aircraft Information: Appendix A, Appendix B, and Appendix C.

j. Separate aircraft behind a heavy jet/B757 departing or making a low/missed approach when utilizing opposite direction takeoffs or landings on the same or parallel runways separated by less than 2,500 feet- 3 minutes.

k. Inform an aircraft when it is necessary to hold in order to provide the required 3-minute interval.

PHRASEOLOGY-

HOLD FOR WAKE TURBULENCE.

REFERENCE-

FAAO 7110.65, Wake Turbulence Separation for Intersection Departures, Para 3-9-7.

3-9-7. WAKE TURBULENCE SEPARATION FOR INTERSECTION DEPARTURES

a. Apply the following wake turbulence criteria for intersection departures:

1. Separate a small aircraft taking off from an intersection on the same runway (same or opposite direction takeoff) or a parallel runway separated by less than 2,500 feet with runway thresholds offset by 500 feet or more behind a preceding departing large aircraft by ensuring that the small aircraft does not start takeoff roll until at least 3 minutes after the large aircraft has taken off.

2. Separate any aircraft taking off from an intersection on the same runway (same or opposite direction takeoff), parallel runways separated by less than 2,500 feet, and parallel runways separated by less than 2,500 feet with runway thresholds offset by 500 feet or more, by ensuring that the aircraft does not start

takeoff roll until at least 3 minutes after a heavy aircraft/B757 has taken off.

NOTE-

Parallel runways separated by less than 2,500 feet with runway thresholds offset by less than 500 feet shall apply para 3-9-6, Same Runway Separation, subpara f.

3. Separate a small aircraft weighing 12,500 lbs. or less taking off from an intersection on the same runway (same or opposite direction takeoff) behind a preceding small aircraft weighing more than 12,500 lbs. by ensuring the following small aircraft does not start takeoff roll until at least 3 minutes after the preceding aircraft has taken off.

4. Inform an aircraft when it is necessary to hold in order to provide the required 3-minute interval.

PHRASEOLOGY-

HOLD FOR WAKE TURBULENCE.

NOTE-

Aircraft conducting touch-and-go and stop-and-go operations are considered to be departing from an intersection.

REFERENCE-

FAAO 7110.65, Touch-and-Go or Stop-and-Go or Low Approach, Para 3-8-2.

b. The 3-minute interval is not required when:

1. A pilot has initiated a request to deviate from that interval unless the preceding departing aircraft is a heavy aircraft/B757.

NOTE-

A request for takeoff does not initiate a waiver request; the request for takeoff must be accomplished by a request to deviate from the 3-minute interval.

2. USA NOT APPLICABLE. The intersection is 500 feet or less from the departure point of the preceding aircraft and both aircraft are taking off in the same direction.

3. Successive touch-and-go and stop-and-go operations are conducted with a small aircraft following another small aircraft weighing more than 12,500 lbs. or a large aircraft in the pattern, or a small aircraft weighing more than 12,500 lbs. or a large aircraft departing the same runway, provided the pilot of the small aircraft is maintaining visual separation/spacing behind the preceding large aircraft. Issue a wake

turbulence cautionary advisory and the position of the large aircraft.

EXAMPLE-

"Caution wake turbulence, DC-9 on base leg."

4. Successive touch-and-go and stop-and-go operations are conducted with any aircraft following a heavy aircraft/B757 in the pattern, or heavy aircraft/B757 departing the same runway, provided the pilot of the aircraft is maintaining visual separation/spacing behind the preceding heavy aircraft/B757. Issue a wake turbulence cautionary advisory and the position of the heavy aircraft/B757.

EXAMPLE-

"Caution wake turbulence, heavy Lockheed C5A departing runway two three."

5. If action is initiated to reduce the separation between successive touch-and-go or stop-and-go operations, apply 3 minutes separation.

c. When applying the provision of subpara b:

1. Issue a wake turbulence advisory before clearing the aircraft for takeoff.

2. Do not clear the intersection departure for an immediate takeoff.

3. Issue a clearance to permit the trailing aircraft to deviate from course enough to avoid the flight path of the preceding large departure when applying supara b1 or b2.

4. Separation requirements in accordance with para 3-9-6, Same Runway Separation, must also apply.

REFERENCE-

FAAO 7110.65, Same Runway Separation, Para 3-9-6.

3-9-8. INTERSECTING RUNWAY SEPARATION

Separate departing aircraft from an aircraft using an intersecting runway, or nonintersecting runways when the flight paths intersect, by ensuring that the departure does not begin takeoff roll until one of the following exists:

a. The preceding aircraft has departed and passed the intersection, has crossed the departure runway, or is turning to avert any conflict.
(See FIG 3-9-5 and FIG 3-9-6.)

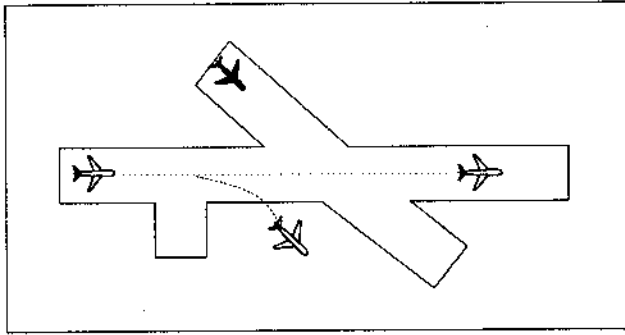
Intersecting Runway Separation

FIG 3-9-5

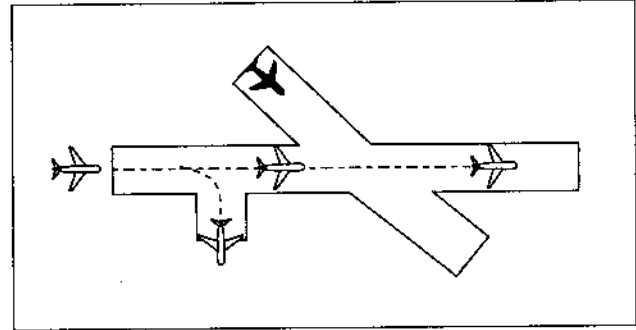
Intersecting Runway Separation

FIG 3-9-7

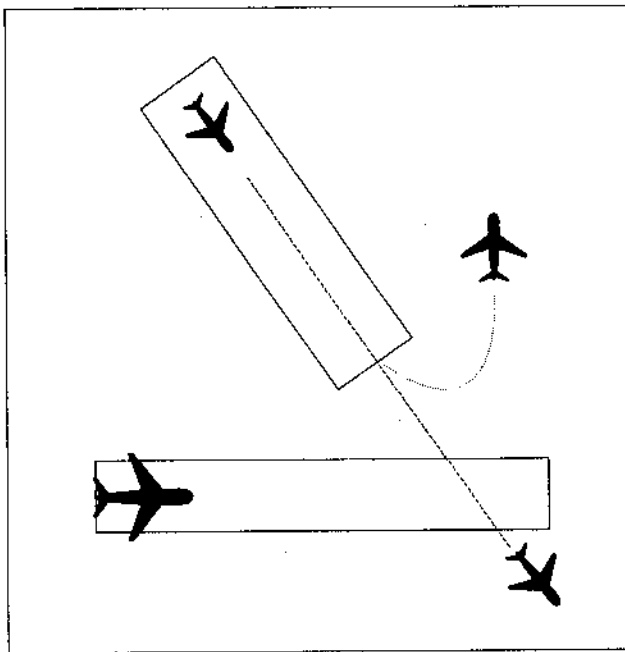
Intersecting Runway Separation

FIG 3-9-6

b. A preceding arriving aircraft is clear of the landing runway, completed the landing roll and will hold short of the intersection, passed the intersection, or has crossed over the departure runway. (See FIG 3-9-7 and FIG 3-9-8.)

REFERENCE-

P/CG Term- Clear of the Runway.

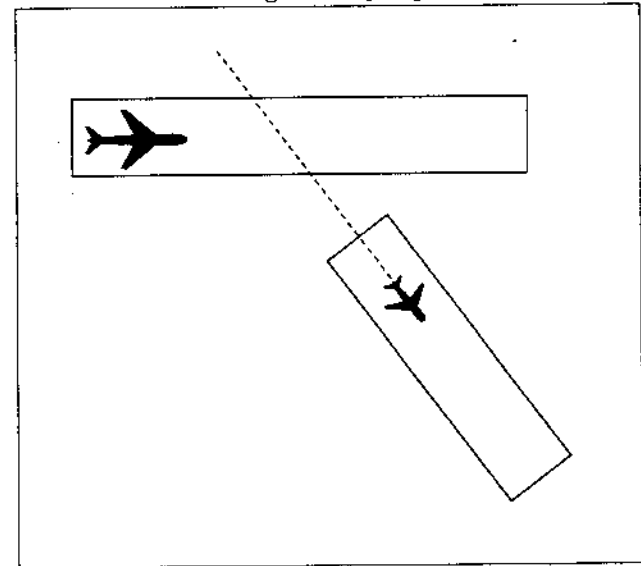
Intersecting Runway Separation

FIG 3-9-8

WAKE TURBULENCE APPLICATION

c. Separate IFR/VFR aircraft taking off behind a heavy jet/B757 departure by 2 minutes when departing:

NOTE-

Takeoff clearance to the following aircraft should not be issued until 2 minutes after the heavy jet/B757 begins takeoff roll.

1. Crossing runways if projected flight paths will cross. (See FIG 3-9-9.)
2. A parallel runway separated by 2,500 feet or more if projected flight paths will cross. (See FIG 3-9-10.)

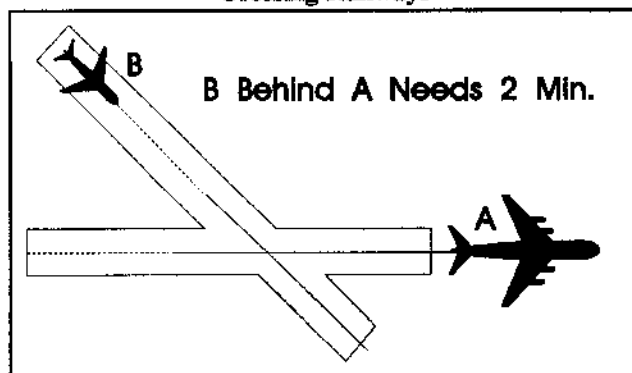
Crossing Runways

FIG 3-9-9

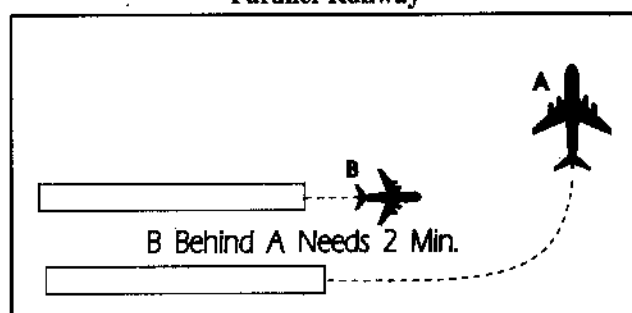
Parallel Runway

FIG 3-9-10

d. Separate IFR/VFR aircraft departing behind a landing heavy jet/B757 on a crossing runway if the departure will fly through the airborne path of the arrival- 2 minutes. (See FIG 3-9-11.)

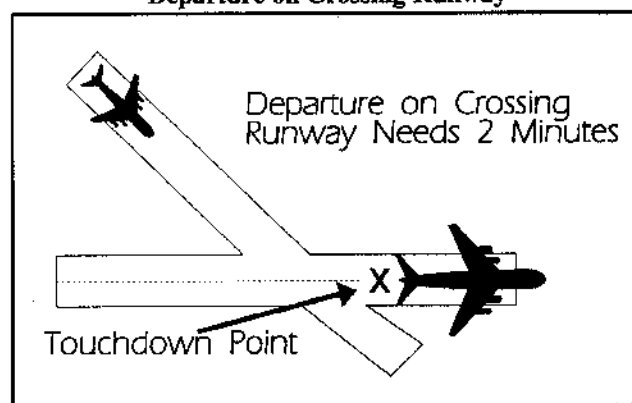
Departure on Crossing Runway

FIG 3-9-11

e. Air traffic controllers shall not approve pilot requests to deviate from the required wake turbulence time interval if the preceding aircraft is a heavy jet/B757.

REFERENCE-

FAAO 7110.65, *Successive or Simultaneous Departures*, Para 5-8-3.
FAAO 7110.65, *Departures and Arrivals on Parallel or Nonintersecting Diverging Runways*, Para 5-8-5.

3-9-9. TAKEOFF CLEARANCE

a. When only one runway is active, issue takeoff clearance.

PHRASEOLOGY-

CLEARED FOR TAKEOFF.

NOTE-

Turbine-powered aircraft may be considered ready for takeoff when they reach the runway unless they advise otherwise.

REFERENCE-

FAAO 7110.65, *Departure Terminology*, Para 4-3-1.

b. When more than one runway is active, first state the runway number followed by the takeoff clearance.

PHRASEOLOGY-

RUNWAY (number), CLEARED FOR TAKEOFF.

EXAMPLE-

"RUNWAY TWO SEVEN, CLEARED FOR TAKEOFF."

c. **USA/USN/USAF.** Issue surface wind and takeoff clearance to aircraft.

PHRASEOLOGY-

**WIND (surface wind in direction and velocity).
CLEARED FOR TAKEOFF.**

d. **USAF.** When an aircraft is cleared for takeoff, inform it of the closest traffic within 6 miles on final approach to the same runway. If the approaching aircraft is on a different frequency, inform it of the departing aircraft.

3-9-10. CANCELLATION OF TAKEOFF CLEARANCE

Cancel a previously issued clearance for takeoff and inform the pilot of the reason if circumstances require. Once an aircraft has started takeoff roll, cancel the takeoff clearance only for the purpose of safety.

NOTE-

In no case should a takeoff clearance be canceled after an aircraft has started its takeoff roll solely for the purpose of meeting traffic management requirements/EDCT.

PHRASEOLOGY-

CANCEL TAKEOFF CLEARANCE (reason).

Section 10. Arrival Procedures and Separation

3-10-1. LANDING INFORMATION

Provide current landing information, as appropriate, to arriving aircraft. Landing information contained in the ATIS broadcast may be omitted if the pilot states the appropriate ATIS code. Runway, wind, and altimeter may be omitted if a pilot uses the phrase "have numbers." Issue landing information by including the following:

NOTE-

Pilot use of "have numbers" does not indicate receipt of the ATIS broadcast.

- a. Specific traffic pattern information (may be omitted if the aircraft is to circle the airport to the left).

PHRASEOLOGY-

ENTER LEFT/RIGHT BASE.

STRAIGHT-IN.

MAKE STRAIGHT-IN.

STRAIGHT-IN APPROVED.

RIGHT TRAFFIC.

MAKE RIGHT TRAFFIC.

RIGHT TRAFFIC APPROVED. CONTINUE.

- b. Runway in use.
- c. Surface wind.
- d. Altimeter setting.

REFERENCE-

FAAO 7110.65, Current Settings, Para 2-7-1.

- e. Any supplementary information.
- f. Clearance to land.

g. Requests for additional position reports. Use prominent geographical fixes which can be easily recognized from the air, preferably those depicted on sectional charts. This does not preclude the use of the legs of the traffic pattern as reporting points.

NOTE-

At some locations, VFR checkpoints are depicted on sectional aeronautical and terminal area charts. In selecting geographical fixes, depicted VFR checkpoints are preferred unless the pilot exhibits a familiarity with the local area.

- h. Ceiling and visibility if either is below basic VFR minima.

- i. Low level wind shear advisories when available.

REFERENCE-

FAAO 7110.65, Low Level Wind Shear Advisories, Para 3-1-8.

- j. Issue braking action for the runway in use as received from pilots or the airport management when Braking Action Advisories are in effect.

REFERENCE-

FAAO 7110.65, Braking Action Advisories, Para 3-3-5.

3-10-2. FORWARDING APPROACH INFORMATION BY NONAPPROACH CONTROL FACILITIES

- a. Forward the following, as appropriate, to the control facility having IFR jurisdiction in your area. You may eliminate those items that, because of local conditions or situations, are fully covered in a letter of agreement or a facility directive.

1. When you clear an arriving aircraft for a visual approach.

REFERENCE-

FAAO 7110.65, Visual Approach, Para 7-4-1.

2. Aircraft arrival time.
3. Cancellation of IFR flight plan.
4. Information on a missed approach, unreported, or overdue aircraft.
5. Runway in use.
6. Weather as required.

REFERENCE-

FAAO 7110.65, Reporting Weather Conditions, Para 2-6-6.

- b. When the weather is below 1,000 feet or 3 miles or the highest circling minimums, whichever is greater, issue current weather to aircraft executing an instrument approach if it changes from that on the ATIS or that previously forwarded to the center/approach control.

3-10-3. SAME RUNWAY SEPARATION

- a. Separate an arriving aircraft from another aircraft using the same runway by ensuring that the arriving aircraft does not cross the landing threshold until one of the following conditions exists or unless authorized in para 3-10-10, Altitude Restricted Low Approach.

1. The other aircraft has landed and is clear of the runway. Between sunrise and sunset, if you can determine distances by reference to suitable landmarks and the other aircraft has landed, it need not be clear of the runway if the following minimum distance from the landing threshold exists:
(See FIG 3-10-1.)

REFERENCE-

PICG Term- Clear of the Runway.

Same Runway Separation

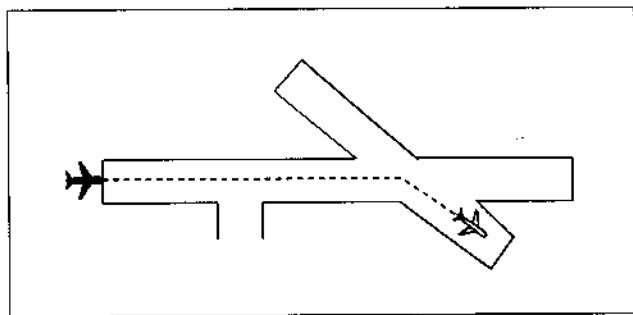


FIG 3-10-1

(a) When a Category I aircraft is landing behind a Category I or II- 3,000 feet.
(See FIG 3-10-2.)

Same Runway Separation

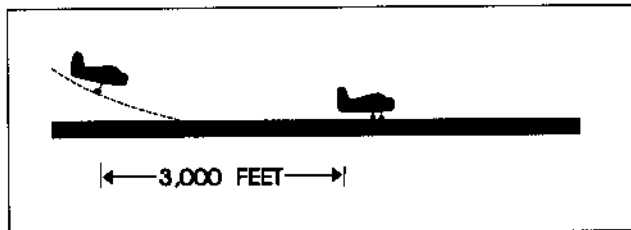


FIG 3-10-2

(b) When a Category II aircraft is landing behind a Category I or II- 4,500 feet.
(See FIG 3-10-3.)

Same Runway Separation

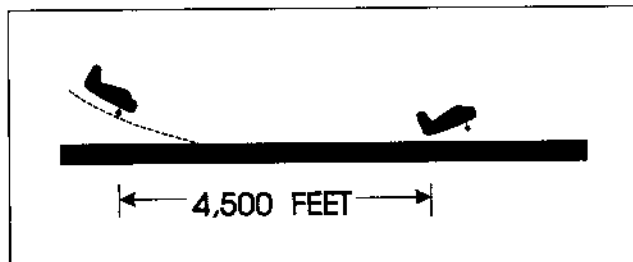


FIG 3-10-3

2. The other aircraft has departed and crossed the runway end. If you can determine distances by reference to suitable landmarks and the other aircraft is airborne, it need not have crossed the runway end if the following minimum distance from the landing threshold exists:

(a) Category I aircraft landing behind Category I or II- 3,000 feet.

(b) Category II aircraft landing behind Category I or II- 4,500 feet.

(c) When either is a category III aircraft- 6,000 feet.
(See FIG 3-10-4 and FIG 3-10-5.)

Same Runway Separation

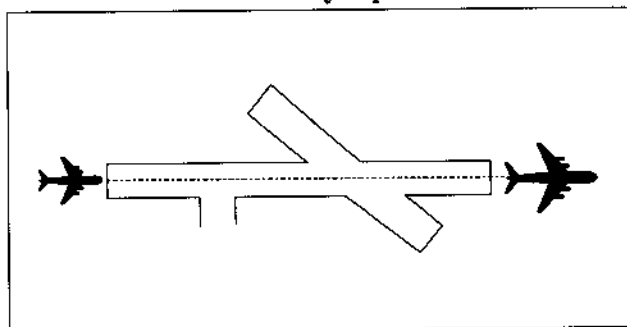


FIG 3-10-4

3. When the succeeding aircraft is a helicopter, visual separation may be applied in lieu of using distance minima.

Same Runway Separation

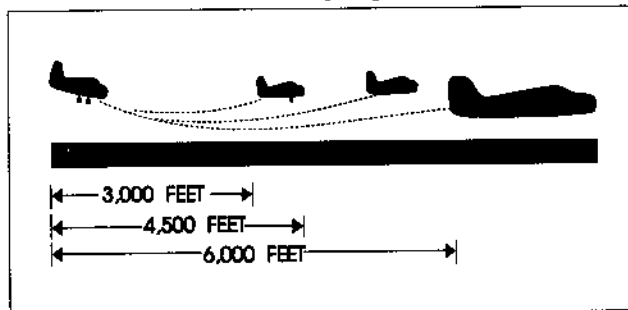


FIG 3-10-5

WAKE TURBULENCE APPLICATION

b. Issue wake turbulence advisories, and the position, altitude if known, and the direction of flight of:

1. The heavy jet/B757 to aircraft landing behind a departing/arriving heavy jet/B757 on the same or parallel runways separated by less than 2,500 feet.

2. The large aircraft to a small aircraft landing behind a departing/arriving large aircraft on the same or parallel runways separated by less than 2,500 feet.

REFERENCE-

AC 90-23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.
FAAO 7110.65, Altitude Restricted Low Approach, Para 3-10-10.

EXAMPLE-

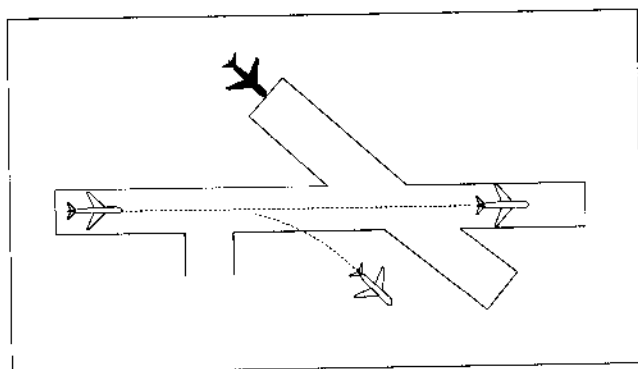
1. "Runway two seven left cleared to land, caution wake turbulence, heavy Boeing 747 departing runway two seven right."

2. "Number two follow Boeing 757 on two-mile final. Caution wake turbulence."

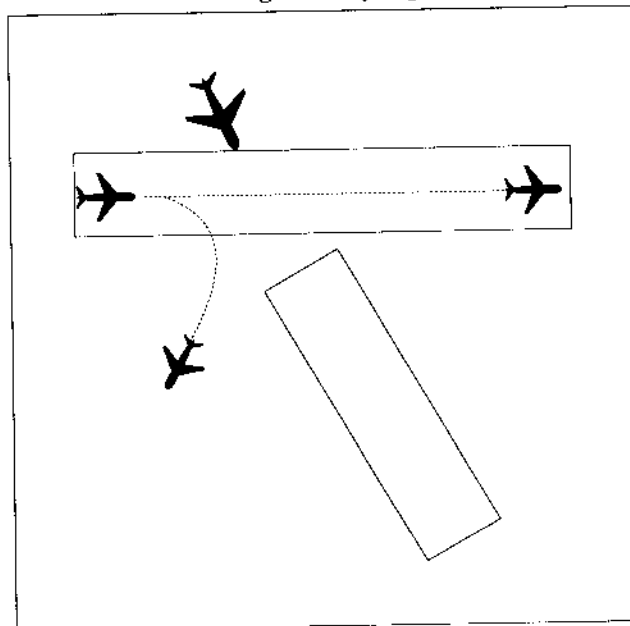
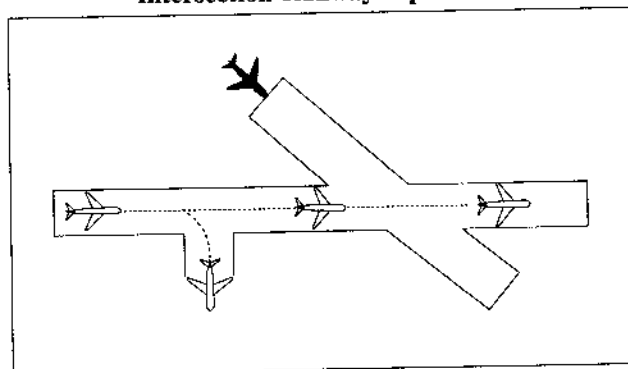
3-10-4. INTERSECTING RUNWAY SEPARATION

a. Separate an arriving aircraft using one runway from another aircraft using an intersecting runway or a nonintersecting runway when the flight paths intersect by ensuring that the arriving aircraft does not cross the landing threshold or flight path of the other aircraft until one of the following conditions exists:

1. The preceding aircraft has departed and passed the intersection/flight path or is airborne and turning to avert any conflict.
(See FIG 3-10-6 and FIG 3-10-7.)

Intersecting Runway Separation**FIG 3-10-6**

2. A preceding arriving aircraft is clear of the landing runway, completed landing roll and will hold short of the intersection/flight path, or has passed the intersection/flight path.
(See FIG 3-10-8 and FIG 3-10-9.)

Intersecting Runway Separation**FIG 3-10-7****Intersection Runway Separation****FIG 3-10-8**

- b. *USAF must secure major command approval prior to conducting Land and Hold Short Operations (LAHSO). "USN NOT APPLICABLE."* An aircraft may be authorized to takeoff from one runway while another aircraft lands simultaneously on an intersecting runway or an aircraft lands on one runway while another aircraft lands simultaneously on an intersecting runway, or an aircraft lands to hold short of an intersecting taxiway or some other predetermined point such as an approach/departure flight path using procedures specified in the current LAHSO directive. The procedure shall be approved by the air traffic manager and be in accordance with a facility directive. The following conditions apply:

NOTE-

Application of these procedures does not relieve controllers from the responsibility of providing other appropriate separation contained in this order.

REFERENCE-

FAAO 7210.3, *Land and Hold Short Operations (LAHSO)*, Para 10-3-7.

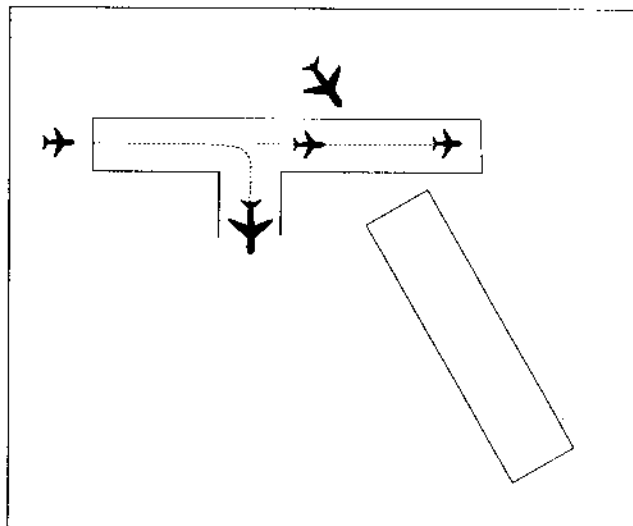
Intersection Runway Separation

FIG 3-10-9

1. A simultaneous takeoff and landing operation shall only be conducted in VFR conditions.

2. Instruct the landing aircraft to hold short of the intersecting runway being used by the aircraft taking off. In the case of simultaneous landings and no operational benefit is lost, restrict the aircraft of the lesser weight category (if known). LAHSO clearances shall only be issued to aircraft that are listed in the current LAHSO directive, whose Available Landing Distance (ALD) does not exceed the landing distance requirement for the runway condition.

PHRASEOLOGY-

HOLD SHORT OF RUNWAY (runway number), (traffic, type aircraft or other information).

NOTE-

Pilots who prefer to use the full length of the runway or a runway different from that specified are expected to advise ATC prior to landing.

3. Issue traffic information to both aircraft involved and obtain an acknowledgment from each. Request a read back of hold short instructions when

they are not received from the pilot of the restricted aircraft.

EXAMPLE-

1. "Runway one eight cleared to land, hold short of runway one four left, traffic, (type aircraft) landing runway one four left."

(When pilot of restricted aircraft responds with only acknowledgment):

"Runway one four left cleared to land, traffic, (type aircraft) landing runway one eight will hold short of the intersection."

"Read back hold short instructions."

2. "Runway three six cleared to land, hold short of runway three three, traffic, (type aircraft) departing runway three three."

"Traffic, (type aircraft) landing runway three six will hold short of the intersection, runway three three cleared for takeoff."

4. Issue the measured distance from the landing threshold to the hold short point rounded "down" to the nearest 50-foot increment if requested by either aircraft.

EXAMPLE-

"Five thousand fifty feet available."

5. The conditions in subparas b2, 3, and 4 shall be met in sufficient time for the pilots to take other action, if desired, and no later than the time landing clearance is issued.

6. Land and Hold Short runways must be free of any contamination as described in the current LAHSO directive, with no reports that braking action is less than good.

7. There is no tailwind for the landing aircraft restricted to hold short of the intersection. The wind may be described as "calm" when appropriate.

REFERENCE-

FAAO 7110.65, *Calm Wind Conditions*, Para 2-6-5.

8. The aircraft required landing distances are listed in the current LAHSO directive.

9. STOL aircraft operations are in accordance with a letter of agreement with the aircraft operator/pilot or the pilot confirms that it is a STOL aircraft.

WAKE TURBULENCE APPLICATION

c. Separate IFR/VFR aircraft landing behind a departing heavy jet/B757 on a crossing runway if the arrival will fly through the airborne path of the departure- 2 minutes or the appropriate radar separation minima.

(See FIG 3-10-10.)

Intersecting Runway Separation

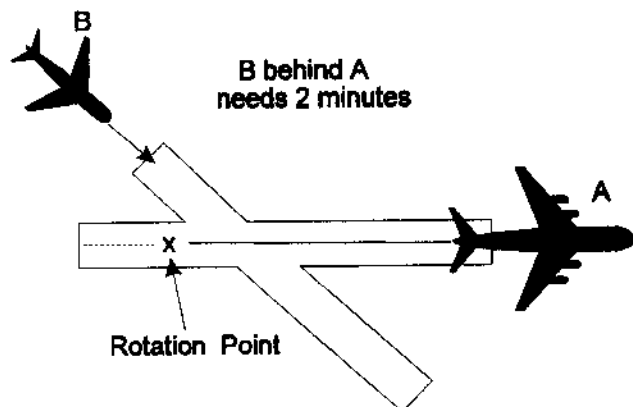


FIG 3-10-10

d. Issue wake turbulence cautionary advisories, the position, altitude if known, and direction of flight of the heavy jet/B757 to:

REFERENCE-

AC 90-23, Aircraft Wake Turbulence, Pilot Responsibility, Para 12.

1. IFR/VFR aircraft landing on crossing runways behind a departing heavy jet/B757; if the arrival flight path will cross the takeoff path behind the heavy jet/B757 and behind the heavy jet/B757 rotation point. (See FIG 3-10-11.)

Intersecting Runway Separation

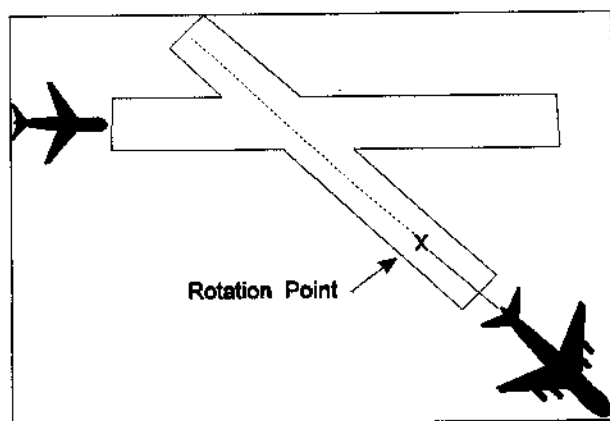


FIG 3-10-11

EXAMPLE-

"Runway niner cleared to land. Caution wake turbulence, heavy C-One Forty One departing runway one five."

2. VFR aircraft landing on a crossing runway behind an arriving heavy jet/B757 if the arrival flight path will cross. (See FIG 3-10-12.)

Intersecting Runway Separation

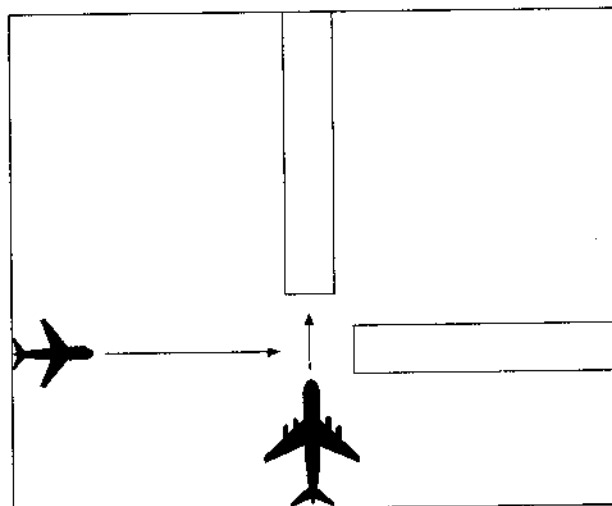


FIG 3-10-12

EXAMPLE-

"Runway niner cleared to land. Caution wake turbulence, Boeing Seven Fifty Seven landing runway three six."

REFERENCE-

FAAO 7110.65, Approaches to Multiple Runways, Para 7-4-4.

3-10-5. LANDING CLEARANCE

a. Issue landing clearance. Restate the landing runway whenever more than one runway is active, or an instrument approach is being conducted to a closed runway.

PHRASEOLOGY-

CLEARED TO LAND,

or

RUNWAY (designator) CLEARED TO LAND.

b. "USN NOT APPLICABLE." Inform the closest aircraft that is cleared to land, touch-and-go, stop-and-go, or unrestricted low approaches when there is traffic holding on the same runway.

EXAMPLE-

"Delta One, cleared to land. Traffic holding in position."

or

"Delta One, runway one eight, cleared to land. Traffic holding in position."

c. *USA/USAF/USN*. Issue surface wind when clearing an aircraft to land, touch-and-go, stop-and-go, low approach, or the option. Restate the landing runway whenever there is a possibility of a conflict with another aircraft which is using or is planning to use another runway.

PHRASEOLOGY-

WIND (surface wind direction and velocity), *CLEARED TO LAND*,

or

WIND (surface wind direction and velocity), *RUNWAY* (designator) *CLEARED TO LAND*.

NOTE-

A clearance to land means that appropriate separation on the landing runway will be ensured. A landing clearance does not relieve the pilot from compliance with any previously issued restriction.

3-10-6. ANTICIPATING SEPARATION

Landing clearance to succeeding aircraft in a landing sequence need not be withheld if you observe the positions of the aircraft and determine that prescribed runway separation will exist when the aircraft cross the landing threshold. Issue traffic information to the succeeding aircraft if not previously reported and appropriate traffic holding in position or departing prior to their arrival.

EXAMPLE-

"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will depart prior to your arrival."

"American Two Forty-Five cleared to land, number two following United Boeing Seven-Thirty-Seven two mile final, traffic will be an MD 88 holding in position."

REFERENCE-

FAAO 7110.65, *Closed/Unsafe Runway Information*, Para 3-3-2.
FAAO 7110.65, *Landing Clearance*, Para 3-10-5b, not required if utilizing the provisions of Para 3-10-6.

3-10-7. LANDING CLEARANCE WITHOUT VISUAL OBSERVATION

When an arriving aircraft reports at a position where he/she should be seen but has not been visually observed, advise the aircraft as a part of the landing clearance that it is not in sight and restate the landing runway.

PHRASEOLOGY-

NOT IN SIGHT, *RUNWAY* (number) *CLEARED TO LAND*.

NOTE-

Aircraft observance on the CTRD satisfies the visually observed requirement.

3-10-8. WITHHOLDING LANDING CLEARANCE

Do not withhold a landing clearance indefinitely even though it appears a violation of Title 14 of the Code of Federal Regulations has been committed. The apparent violation might be the result of an emergency situation. In any event, assist the pilot to the extent possible.

3-10-9. RUNWAY EXITING

a. Instruct aircraft where to turn-off the runway after landing, when appropriate, and advise the aircraft to hold short of a runway or taxiway if required for traffic.

PHRASEOLOGY-

TURN LEFT/RIGHT (turning point),

or

IF ABLE, *TURN LEFT/RIGHT* (turning point)

and if required

HOLD SHORT OF (runway).

NOTE-

Runway exiting or taxi instructions should not normally be issued to an aircraft prior to, or immediately after, touchdown.

b. Taxi instructions shall be provided to the aircraft by the local controller when:

1. Compliance with ATC instructions will be required before the aircraft can change to ground control, or

2. The aircraft will be required to enter a taxiway/runway/ramp area, other than the one used to exit the landing runway, in order to taxi clear of the landing runway.

EXAMPLE-

"U.S. Air Ten Forty Two, turn right next taxiway, cross taxiway Bravo, hold short of taxiway Charlie, contact ground point seven."

NOTE-

1. An aircraft is expected to taxi clear of the runway unless otherwise directed by ATC. Pilots shall not exit the landing runway on to an intersecting runway unless authorized by ATC. In the absence of ATC instructions, an aircraft should taxi clear of the landing runway by clearing the hold position marking associated with the landing runway even if that requires the aircraft to protrude into or enter another taxiway/ramp area. This does not authorize an aircraft to

cross a subsequent taxiway or ramp after clearing the landing runway.

2. The pilot is responsible for ascertaining when the aircraft is clear of the runway by clearing the hold position marking associated with the landing runway.

c. Ground control and local control shall protect a taxiway/runway/ramp intersection if an aircraft is required to enter that intersection to clear the landing runway.

REFERENCE-

FAAO 7210.3, *Use of Active Runways*, Para 10-1-7.

d. Request a read back of runway hold short instructions when not received from the pilot.

EXAMPLE-

"American Four Ninety-two, turn left at Taxiway Charlie, hold short of Runway 27 Right."

"American Four Ninety Two, Roger."

"American Four Ninety-two, read back hold instructions."

NOTE-

Read back hold instructions phraseology may be initiated for any point on a movement area when the controller believes the read back is necessary.

3-10-10. ALTITUDE RESTRICTED LOW APPROACH

A low approach with an altitude restriction of not less than 500 feet above the airport may be authorized except over an aircraft in takeoff position or a departure aircraft. Do not clear aircraft for restricted altitude low approaches over personnel unless airport authorities have advised these personnel that the approaches will be conducted. Advise the approaching aircraft of the location of applicable ground traffic, personnel, or equipment.

NOTE-

1. The 500 feet restriction is a minimum. Higher altitudes should be used when warranted. For example, 1,000 feet is more appropriate for heavy aircraft operating over unprotected personnel or small aircraft on or near the runway.

2. This authorization includes altitude restricted low approaches over preceding landing or taxiing aircraft. Restricted low approaches are not authorized over aircraft in takeoff position or departing aircraft.

PHRASEOLOGY-

CLEARED LOW APPROACH AT OR ABOVE (altitude). TRAFFIC (description and location).

REFERENCE-

FAAO 7110.65, *Vehicles/Equipment/Personnel on Runways*, Para 3-1-5.

FAAO 7110.65, *Traffic Information*, Para 3-1-6.

FAAO 7110.65, *Light Signals*, Para 3-2-1.

FAAO 7110.65, *Timely Information*, Para 3-3-3.

FAAO 7110.65, *Taxi into Position and Hold (TIPH)*, Para 3-9-4.

FAAO 7110.65, *Same Runway Separation*, Para 3-10-3.

3-10-11. CLOSED TRAFFIC

Approve/disapprove pilot requests to remain in closed traffic for successive operations subject to local traffic conditions.

PHRASEOLOGY-

LEFT/RIGHT (if required) CLOSED TRAFFIC APPROVED. REPORT (position if required),

or

UNABLE CLOSED TRAFFIC, (additional information as required).

NOTE-

Segregated traffic patterns for helicopters to runways and other areas may be established by letter of agreement or other local operating procedures.

REFERENCE-

FAAO 7110.65, *Runway Proximity*, Para 3-7-4.

FAAO 7110.65, *Taxi into Position and Hold (TIPH)*, Para 3-9-4.

FAAO 7110.65, *Same Runway Separation*, Para 3-10-3.

3-10-12. OVERHEAD MANEUVER

Issue the following to arriving aircraft that will conduct an overhead maneuver:

a. Pattern altitude and direction of traffic. Omit either or both if standard or when you know the pilot is familiar with a nonstandard procedure.

PHRASEOLOGY-

PATTERN ALTITUDE (altitude). RIGHT TURNS.

b. Request for report on initial approach.

PHRASEOLOGY-

REPORT INITIAL.

c. "Break" information and request for pilot report. Specify the point of "break" only if nonstandard. Request the pilot to report "break" if required for traffic or other reasons.

PHRASEOLOGY-

BREAK AT (specified point).

REPORT BREAK.

d. Overhead maneuver patterns are developed at airports where aircraft have an operational need to conduct the maneuver. An aircraft conducting an overhead maneuver is on VFR and the IFR flight plan is cancelled when the aircraft reaches the "initial point" on the initial approach portion of the maneuver. The existence of a standard overhead maneuver pattern does not eliminate the possible requirement for an aircraft to conform to conventional rectangular patterns if an overhead maneuver cannot be approved.

NOTE-

Aircraft operating to an airport without a functioning control tower must initiate cancellation of the IFR flight plan prior to executing the overhead maneuver or after landing.

Overhead Maneuver

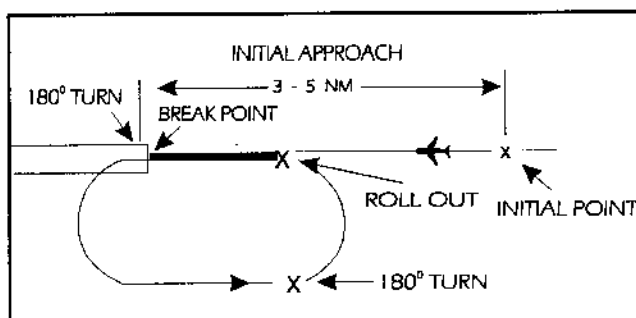


FIG 3-10-13

EXAMPLE-

"Air Force Three Six Eight, Runway Six, wind zero seven zero at eight, pattern altitude six thousand, report initial."

"Air Force Three Six Eight, break at midfield, report break."

"Air Force Three Six Eight, cleared to land."

"Alfa Kilo Two Two, Runway Three One, wind three three zero at one four, right turns, report initial."

"Alfa Kilo Two Two, report break."

"Alfa Kilo Two Two, cleared to land."

e. Timely and positive controller action is required to prevent a conflict when an overhead pattern could extend into the path of a departing or a missed approach aircraft. Local procedures and/or coordination requirements should be set forth in an appropriate letter of agreement, facility directive, base flying manual etc., when the frequency of occurrence warrants.

3-10-13. SIMULATED FLAMEOUT (SFO) APPROACHES/PRACTICE PRECAUTIONARY APPROACHES

a. Authorize military aircraft to make SFO/practice precautionary approaches if the following conditions are met:

1. A letter of agreement or local operating procedure is in effect between the military flying organization and affected ATC facility.

(a) Include specific coordination, execution, and approval procedures for the operation.

(b) The exchange or issuance of traffic information as agreed to in any interfacility letter of agreement is accomplished.

(c) Include a statement in the procedure that clarifies at which points SFO's may/may not be terminated. (See FIG 3-10-14.)

2. Traffic information regarding aircraft in radio communication with or visible to tower controllers which are operating within or adjacent to the flameout maneuvering area is provided to the SFO aircraft and other concerned aircraft.

3. The high-key altitude or practice precautionary approach maneuvering altitudes of the aircraft concerned are obtained prior to approving the approach. (See FIG 3-10-14.)

NOTE-

1. *Practice precautionary/flameout approaches are authorized only for specific aircraft. Precautionary approaches, however, might be made by any aircraft when engine failure is considered possible. The practice precautionary approach maneuvering area/altitudes may not conform to the standard flameout maneuvering area/altitudes.*

2. *Simulated flameout approaches generally require high descent rates. Visibility ahead and beneath the aircraft is greatly restricted.*

3. *Pattern adjustments for aircraft conducting SFO's may impact the effectiveness of SFO training.*

REFERENCE-

FAAO 7110.65, Low Approach and Touch-and-Go, Para 4-8-12.

FAAO 7610.4, Simulated Flame-Out (SFO) Operations, Para 9-3-7.

b. For overhead simulated flameout approaches:

1. Request a report at the entry point.

PHRASEOLOGY-

REPORT (high or low) KEY (as appropriate).

2. Request a report at low key.

PHRASEOLOGY-
REPORT LOW KEY.

3. At low key, issue low approach clearance or alternate instructions.

REFERENCE-
FAAO 7110.65, Sequence/Spacing Application, Para 3-8-1.
FAAO 7110.65, Inflight Emergencies Involving Military Fighter-type Aircraft, Para 10-1-7.
FAAO 7610.4, Simulated Flame-Out (SFO) Operations, Para 9-3-7.

- c. For straight-in simulation flameout approaches:

1. Request a position report from aircraft conducting straight-in SFO approaches.

PHRASEOLOGY-
REPORT (distance) MILE SIMULATED FLAMEOUT FINAL.

Simulated Flameout [1]

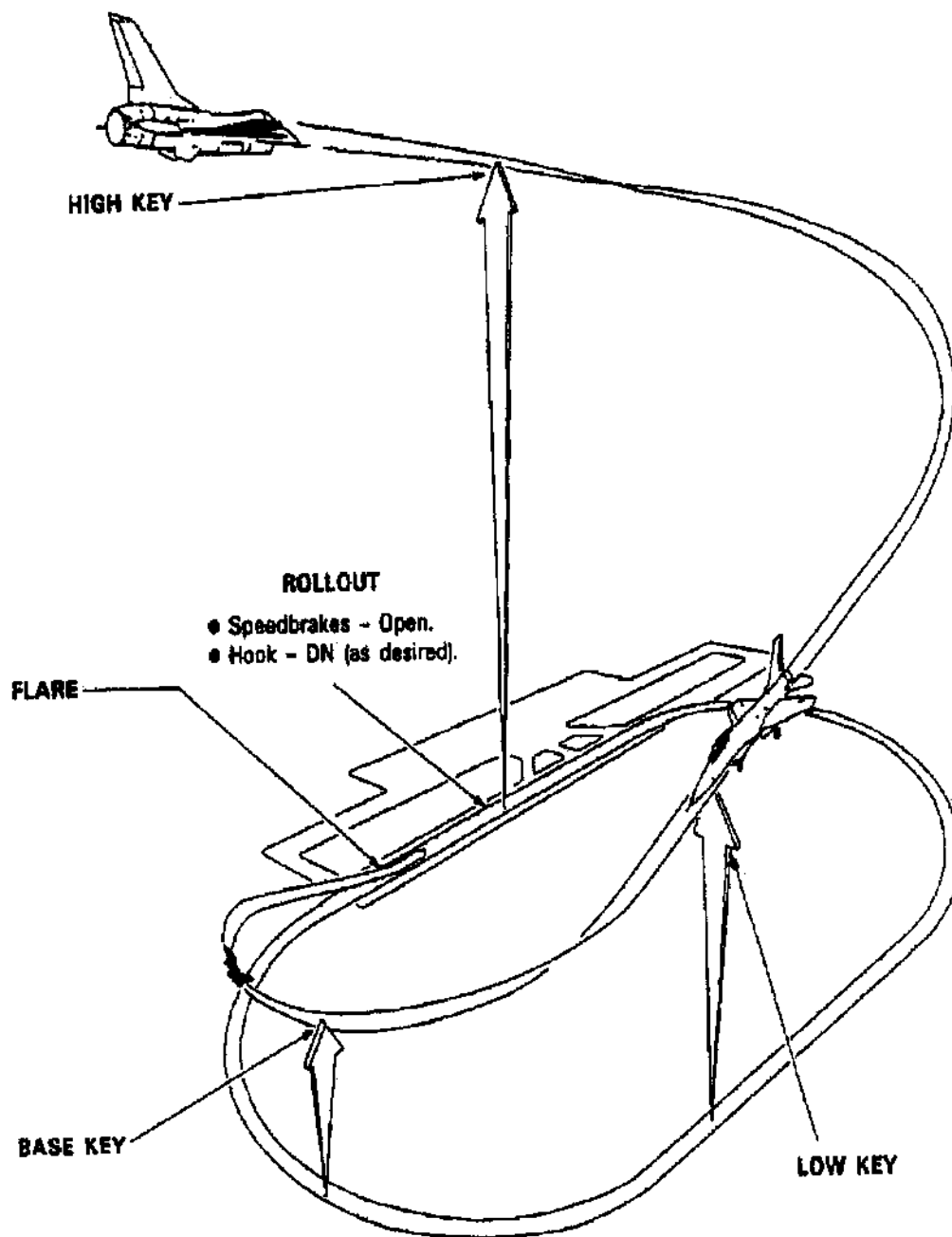
FLAMEOUT PATTERN

FIG 3-10-14

2. At the appropriate position on final (normally no closer than 3 miles), issue low approach clearance or alternate instruction. (See FIG 3-10-15.)

Simulated Flameout [2]

STRAIGHT-IN FLAMEOUT PATTERN

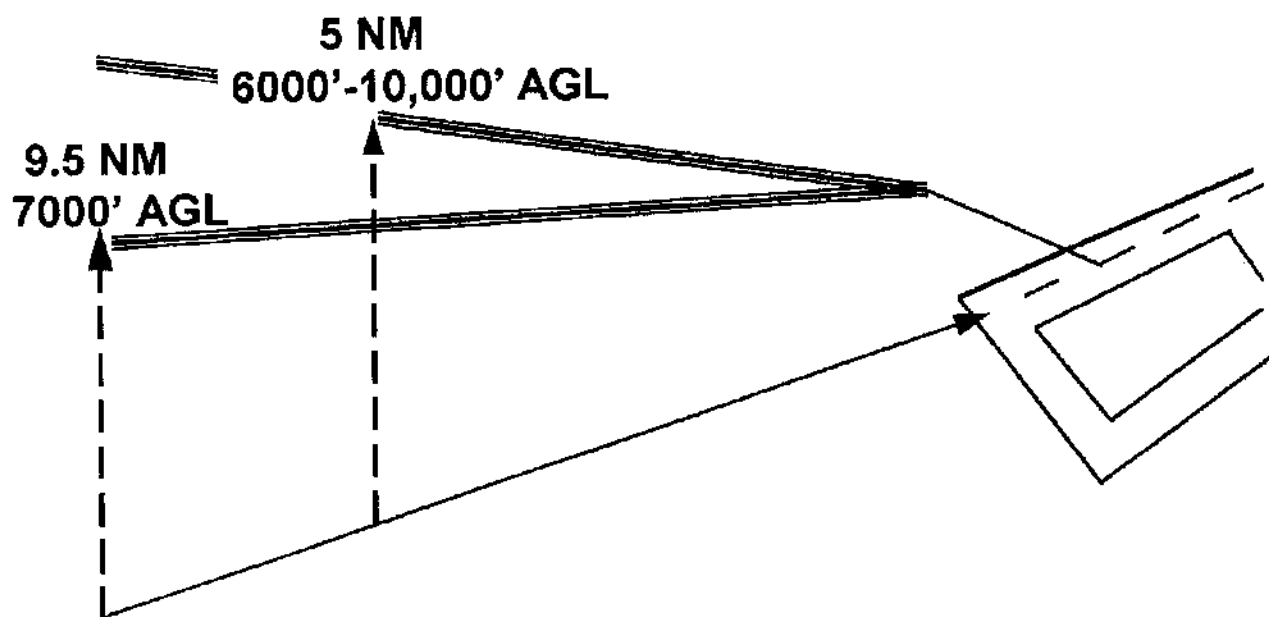


FIG 3-10-15

Section 11. Helicopter Operations

3-11-1. TAXI AND GROUND MOVEMENT OPERATION

a. When necessary for a wheeled helicopter to taxi on the surface, use the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

NOTE-

Ground taxiing uses less fuel than hover-taxiing and minimizes air turbulence. However, under certain conditions, such as rough, soft, or uneven terrain, it may become necessary to hover/air-taxi for safety considerations. Helicopters with articulating rotors (usually designs with three or more main rotor blades) are subject to "ground resonance" and may, on rare occasions, suddenly lift off the ground to avoid severe damage or destruction.

b. When requested or necessary for a helicopter/VTOL aircraft to proceed at a slow speed above the surface, normally below 20 knots and in ground effect, use the following phraseology, supplemented as appropriate with the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

PHRASEOLOGY-

HOVER-TAXI (supplemented, as appropriate, from para 3-7-2, Taxi and Ground Movement Operations.)

CAUTION (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.).

NOTE-

Hover-taxiing consumes fuel at a high burn rate, and helicopter downwash turbulence (produced in ground effect) increases significantly with larger and heavier helicopters.

REFERENCE-

P/CG Term- Hover Taxi.

AIM, VFR Helicopter Operations at Controlled Airports, Para 4-3-17.

c. When requested or necessary for a helicopter to proceed expeditiously from one point to another, normally below 100 feet AGL and at airspeeds above 20 knots, use the following phraseology, supplemented as appropriate with the phraseology in para 3-7-2, Taxi and Ground Movement Operations.

PHRASEOLOGY-

AIR-TAXI:

VIA (direct, as requested, or specified route)

TO (location, heliport, helipad, operating/movement area, active/inactive runway).

AVOID (aircraft/vehicles/personnel).
if required,

REMAIN AT OR BELOW (altitude).

CAUTION (wake turbulence or other reasons above).

LAND AND CONTACT TOWER,

or

HOLD FOR (reason- takeoff clearance, release, landing/taxiing aircraft, etc.).

NOTE-

Air-taxi is the preferred method for helicopter movements on airports provided ground operations/conditions permit. Air-taxi authorizes the pilot to proceed above the surface either via hover-taxi or flight at speeds more than 20 knots. Unless otherwise requested or instructed, the pilot is expected to remain below 100 feet AGL. The pilot is solely responsible for selecting a safe airspeed for the altitude/operation being conducted.

REFERENCE-

P/CG Term- Air Taxi.

AIM, VFR Helicopter Operations at Controlled Airports, Para 4-3-17.

WAKE TURBULENCE APPLICATION

d. Avoid clearances which require small aircraft or helicopters to taxi in close proximity to taxiing or hover-taxi helicopters.

REFERENCE-

AC 90-23, Aircraft Wake Turbulence, Para 10 and Para 11.

3-11-2. HELICOPTER TAKEOFF CLEARANCE

a. Issue takeoff clearance from movement areas other than active runways, or in diverse directions from active runways, with additional instructions, as necessary. Whenever possible, issue takeoff clearance in lieu of extended hover-taxi or air-taxi operations.

PHRASEOLOGY-

(Present position, taxiway, helipad, numbers) **MAKE RIGHT/LEFT TURN FOR** (direction, points of compass, heading, NAVAID radial) **DEPARTURE/DEPARTURE ROUTE** (number, name, or code), **AVOID** (aircraft/vehicles/personnel),

or

REMAIN (direction) **OF** (active runways, parking areas, passenger terminals, etc.).

CAUTION (power lines, unlighted obstructions, trees, wake turbulence, etc.).

CLEARED FOR TAKEOFF.

b. If takeoff is requested from nonmovement areas and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the takeoff clearance in subpara a.

PHRASEOLOGY-

PROCEED AS REQUESTED, USE CAUTION (reason and additional instructions, as appropriate).

c. If takeoff is requested from an area not visible, an area not authorized for helicopter use, an unlighted nonmovement area at night, or an area off the airport, and traffic is not a factor, use the following phraseology.

PHRASEOLOGY-

DEPARTURE FROM (requested location) **WILL BE AT YOUR OWN RISK** (reason and additional instructions, as necessary).

TRAFFIC (as applicable),

or

TRAFFIC NOT A FACTOR.

d. Unless requested by the pilot, do not issue downwind takeoffs if the tailwind exceeds 5 knots.

NOTE-

A pilot request to takeoff from a given point in a given direction constitutes such a request.

3-11-3. HELICOPTER DEPARTURE SEPARATION

Separate a departing helicopter from other helicopters by ensuring that it does not takeoff until one of the following conditions exists:

NOTE-

Helicopters performing air-taxiing operations within the boundary of the airport are considered to be taxiing aircraft.

a. A preceding, departing helicopter has left the takeoff area. (See FIG 3-11-1.)

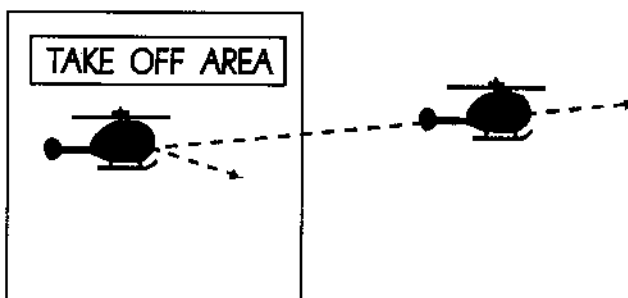
Helicopter Departure Separation

FIG 3-11-1

b. A preceding, arriving helicopter has taxied off the landing area. (See FIG 3-11-2.)

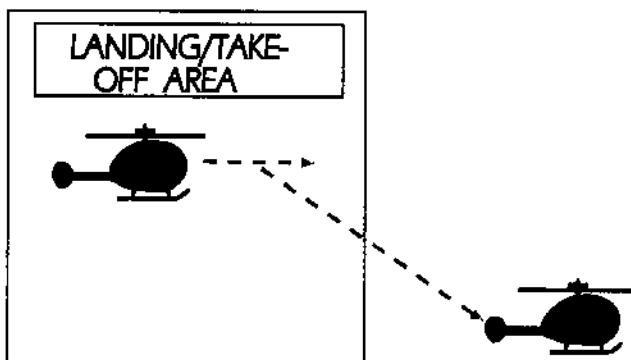
Helicopter Departure Separation

FIG 3-11-2

3-11-4. HELICOPTER ARRIVAL SEPARATION

Separate an arriving helicopter from other helicopters by ensuring that it does not land until one of the following conditions exists:

- a. A preceding, arriving helicopter has come to a stop or taxied off the landing area.
(See FIG 3-11-3 and FIG 3-11-4.)

Helicopter Arrival Separation

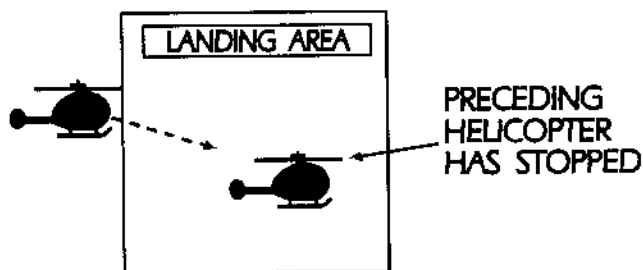


FIG 3-11-3

Helicopter Arrival Separation

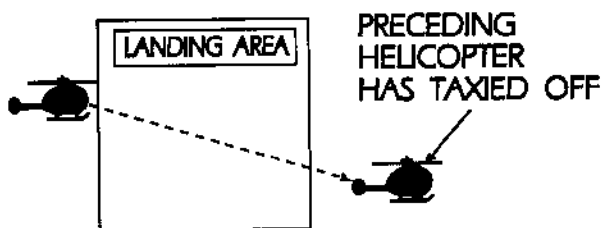


FIG 3-11-4

- b. A preceding, departing helicopter has left the landing area. (See FIG 3-11-5.)

Helicopter Arrival Separation



FIG 3-11-5

3-11-5. SIMULTANEOUS LANDINGS OR TAKEOFFS

Authorize helicopters to conduct simultaneous landings or takeoffs if the distance between the landing or takeoff points is at least 200 feet and the courses to be flown do not conflict. Refer to surface markings to determine the 200 foot minimum, or instruct a helicopter to remain at least 200 feet from another helicopter. (See FIG 3-11-6.)

Simultaneous Helicopter Landings or Takeoffs

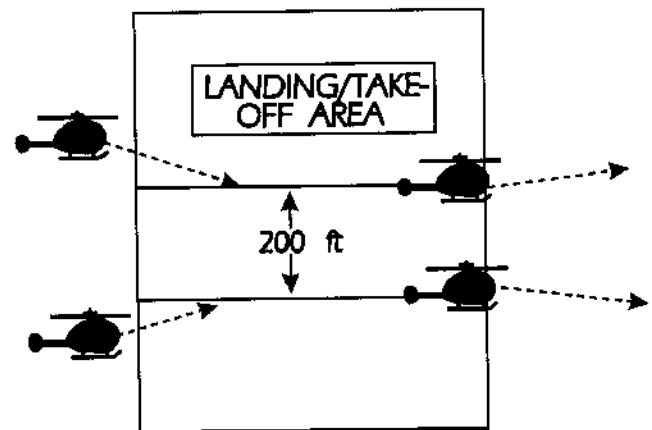


FIG 3-11-6

3-11-6. HELICOPTER LANDING CLEARANCE

a. Issue landing clearance for helicopters to movement areas other than active runways, or from diverse directions to points on active runways, with additional instructions, as necessary. Whenever possible, issue landing clearance in lieu of extended hover-taxi or air-taxi operations.

PHRASEOLOGY-

MAKE APPROACH STRAIGHT-IN/CIRCLING LEFT/RIGHT TURN TO (location, runway, taxiway, helipad, Maltese cross) **ARRIVAL/ARRIVAL ROUTE** (number, name, or code).

HOLD SHORT OF (active runway, extended runway centerline, other).

REMAIN (direction/distance; e.g., 700 feet, 1 1/2 miles) **FROM** (runway, runway centerline, other helicopter/aircraft).

CAUTION (power lines, unlighted obstructions, wake turbulence, etc.).

CLEARED TO LAND.

CONTACT GROUND.

AIR TAXI TO RAMP.

b. If landing is requested to nonmovement areas and, in your judgment, the operation appears to be reasonable, use the following phraseology instead of the landing clearance in subpara a above.

PHRASEOLOGY-

PROCEED AS REQUESTED, USE CAUTION (reason and additional instructions, as appropriate).

c. If landing is requested to an area not visible, an area not authorized for helicopter use, an unlighted nonmovement area at night, or an area off the airport, and traffic is not a factor, use the following phraseology.

PHRASEOLOGY-

LANDING AT (requested location) **WILL BE AT YOUR OWN RISK** (reason and additional instructions, as necessary).

TRAFFIC (as applicable),

or

TRAFFIC NOT A FACTOR.

d. Unless requested by the pilot, do not issue downwind landings if the tailwind exceeds 5 knots.

NOTE-

A pilot request to land at a given point from a given direction constitutes such a request.

Section 12. Sea Lane Operations

3-12-1. APPLICATION

Where sea lanes are established and controlled, apply the provisions of this section.

3-12-2. DEPARTURE SEPARATION

Separate a departing aircraft from a preceding departing or arriving aircraft using the same sea lane by ensuring that it does not commence takeoff until:

a. The other aircraft has departed and crossed the end of the sea lane or turned to avert any conflict. If you can determine distances by reference to suitable landmarks, the other aircraft need only be airborne if the following minimum distance exists between aircraft:

1. When only Category I aircraft are involved- 1,500 feet.
2. When a Category I aircraft is preceded by a Category II aircraft- 3,000 feet.

Sea Lane Departure Operations

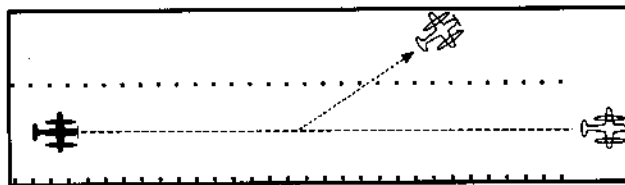


FIG 3-12-1

3. When either the succeeding or both are Category II aircraft- 3,000 feet.
4. When either is a Category III aircraft- 6,000 feet. (See FIG 3-12-1 and FIG 3-12-2.)

Sea Lane Departure Operations

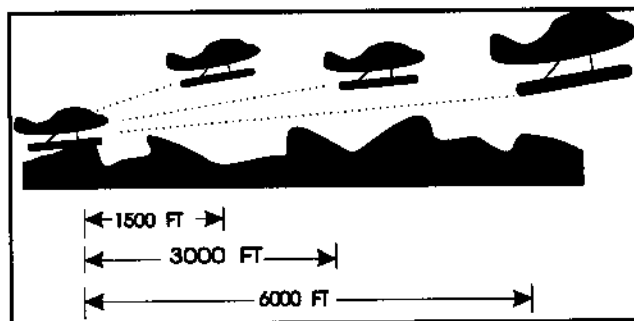


FIG 3-12-2

b. A preceding landing aircraft has taxied out of the sea lane.

NOTE-

Due to the absence of braking capability, caution should be exercised when instructing a float plane to hold a position as the aircraft will continue to move because of prop generated thrust. Clearance to taxi into position and hold should, therefore, be followed by takeoff or other clearance as soon as practicable.

3-12-3. ARRIVAL SEPARATION

Separate an arriving aircraft from another aircraft using the same sea lane by ensuring that the arriving aircraft does not cross the landing threshold until one of the following conditions exists:

a. The other aircraft has landed and taxied out of the sea lane. Between sunrise and sunset, if you can determine distances by reference to suitable landmarks and the other aircraft has landed, it need not be clear of the sea lane if the following minimum distance from the landing threshold exists:

1. When a Category I aircraft is landing behind a Category I or II- *2,000 feet*. (See FIG 3-12-3.)

Sea Lane Arrival Operations

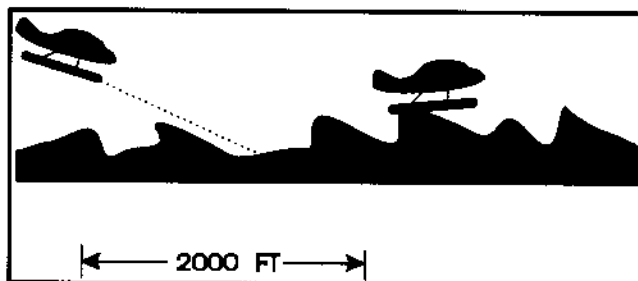


FIG 3-12-3

2. When a Category II aircraft is landing behind a Category I or II- *2,500 feet*. (See FIG 3-12-4.)

Sea Lane Arrival Operations [View 2]

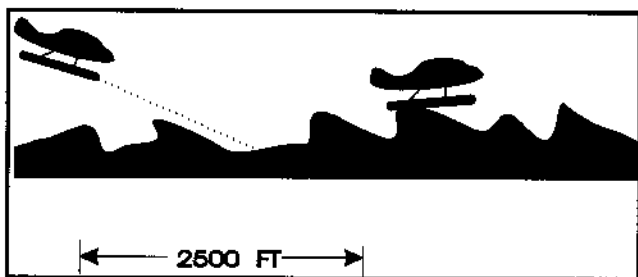


FIG 3-12-4

- b. The other aircraft has departed and crossed the end of the sea lane or turned to avert any conflict. If you can determine distances by reference to suitable landmarks and the other aircraft is airborne, it need not

have crossed the end of the sea lane if the following minimum distance from the landing threshold exists:

1. When only Category I aircraft are involved- *1,500 feet*.
2. When either is a Category II aircraft- *3,000 feet*.

Sea Lane Arrival Operations

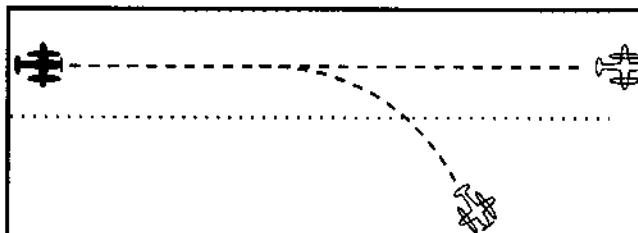


FIG 3-12-5

3. When either is a Category III aircraft- *6,000 feet*. (See FIG 3-12-5 and FIG 3-12-6.)

Sea Lane Arrival Operations

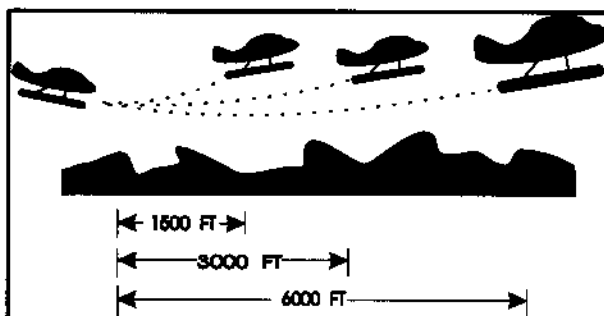


FIG 3-12-6